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MAGAZINE OF BOTANY.

PAXTON'S
MAGAZINE OF BOTANY,
AND
REGISTER OF FLOWERING PLANTS.

"Flowers of all hue."

VOLUME THE TWELFTH.

51.566.

LONDON:
PUBLISHED BY Wm. S. ORR & CO., PATERNOSTER ROW.
MDCCCXLVI.

LONDON:
BRADBURY AND EVANS, PRINTERS, WHITEFRIARS.

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TO

HIS ROYAL HIGHNESS PRINCE ALBERT,

K.G., ETC. ETC. ETC.

This Twelfth Volume

OF

THE MAGAZINE OF BOTANY,

IS MOST HUMBLY INSCRIBED

BY

HIS ROYAL HIGHNESS'S VERY OBEDIENT AND OBLIGED SERVANT,

JOSEPH PAXTON.

ADVERTISEMENT.

It might be expected that, at the end of so long a period as the twelve years, during which the MAGAZINE OF BOTANY has been regularly issued, some steps should be taken for so materially varying its character as to produce a new series, or introduce it with a fresh aspect and arrangement. This appears to be the usual course.

But after sufficiently considering the reasons which might be urged for following such a plan, we are induced to continue in our old track; because, firstly, we have, by successive improvements, brought our Magazine to a point of excellence, especially in the pictorial department, beyond which much further advancement seems unattainable; and, secondly, we are yet favoured with the same unwavering amount of support which we had several years ago; and we deduce from the latter circumstance the conclusion that the form in which the Magazine now appears, and the manner in which it is conducted, are regarded as at least satisfactory by those whom it is our aim and pleasure to please.

Possessing these views, therefore, our yearly announcement and salutation to our Subscribers will be limited to an expression of thanks for their prolonged confidence, and the assertion of our annually repeated, but as often verified, promise, that the style of the work, in all its features, shall be kept up fully to the present standard; while all means that may be suggested to us, or which may occur to our own thoughts, for making it in any way more popular or useful, shall be executed with the utmost promptitude.

We retain all those peculiar and necessarily augmenting facilities for carrying on the work creditably, and filling it with figures of beautiful plants, by which we have always been so signally aided.

Chatsworth,
December 20*th*, 1845.

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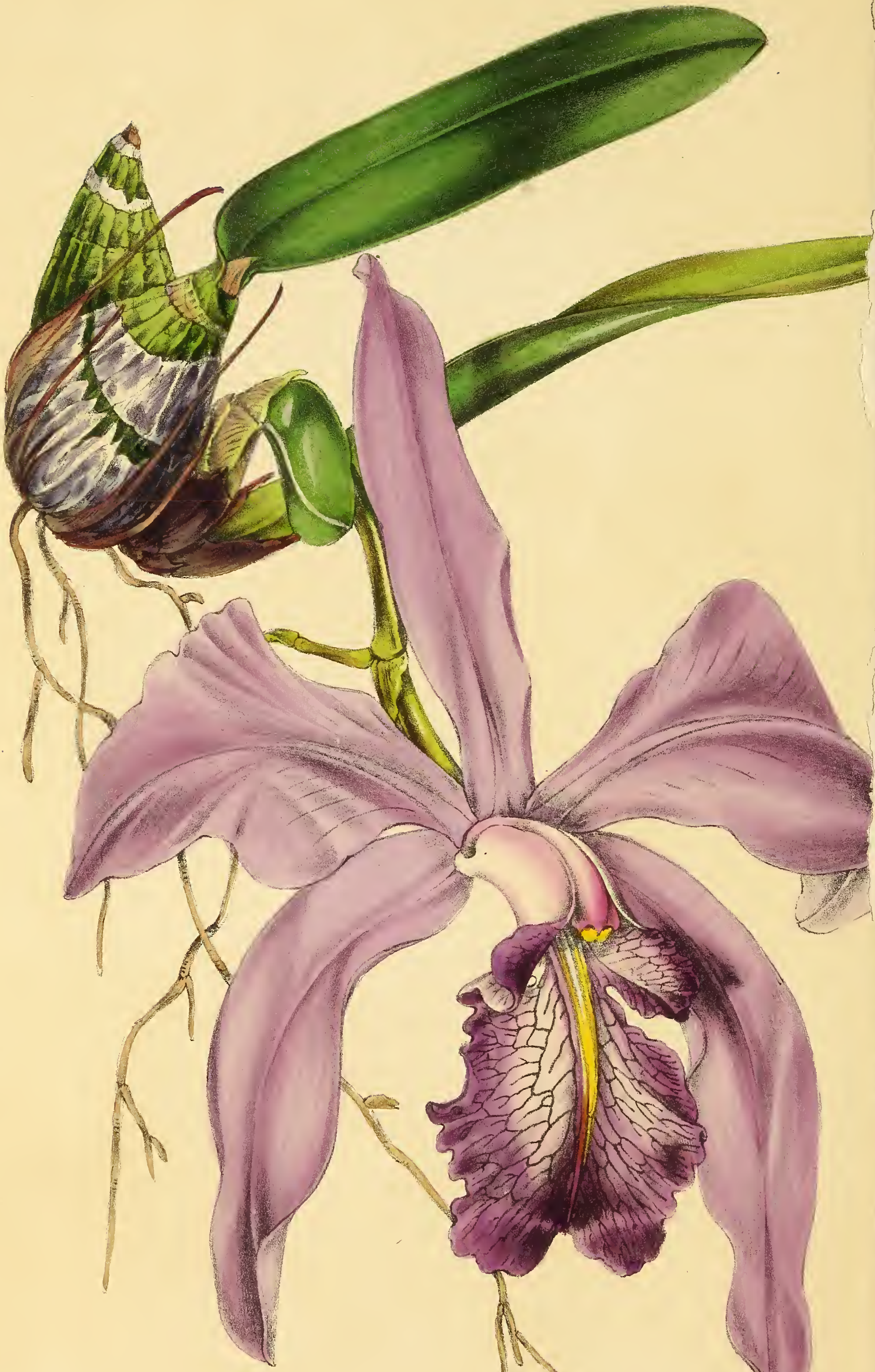

S Holden, del & Lith.

Lælia majalis.

LÆ̀LIA MAJÀLIS.

(The May-flower Lælia.)

Class.
GYNANDRIA.

Order.
MONANDRIA.

Natural Order.
ORCHIDACEÆ.

Generic Character.—*Sepals* explanate, lanceolate, equal. *Petals* larger, slightly dissimilar in form. *Labellum* three-parted, lamellate, overwrapping the column. *Column* wingless, fleshy, front surface channelled. *Anthers* eight-celled. *Pollen-masses* eight. *Caudiculæ* four, elastic.

Specific Character.—*Plant* an epiphyte. *Pseudobulbs* ovate, or spherical, faintly wrinkled; when young, clothed with whitish membranous scales. *Leaves* oblong, acute, thick, shorter than the scape. *Scape* from six inches to a foot long, nodding, round. *Sepals* lanceolate, acute. *Petals* more than thrice the width, oblong-lanceolate, waved at the margins, and bent backward. *Lip* three-lobed; lateral lobes leaning against the sides of the column which they almost encircle, rounded at the extremities, where they spread open; intermediate lobe much larger than the others, deeply emarginate, unguiculate, and slightly notched on the margin. *Column* shorter than the lateral lobes of the lip.

Synonyme.—*Cattleya Grahami.*

From the figures already published of this charming species, the plant which supplied the subject for our representation appears to differ in having very much larger flowers; but whether this is a property naturally inherent in it, or merely produced by some peculiarity in its treatment, we are unable to say. The pencillings of the lip are also more numerous, whilst in the others dots predominate. It flowered in the nursery of Messrs. Loddiges last May, when our artist took the accompanying delineation.

Mr. Bateman, in his admirable work on the Orchidaceæ of Guatemala, represents it as producing three or four flowers on a scape; but hitherto none of the specimens flowered in England, have emitted more than a solitary flower on each stalk.

The same work also informs us, that it is abundant in the more temperate parts of Mexico, and is much esteemed by the natives for the consummate beauty and elegance of its blossoms. Amongst them it is known by the familiar appellation of "Flor de Mayo," the signification of which has been preserved in the specific title. The first specimens received in England were transmitted by Dr. Schiede, and liberally distributed by Professor Schlechtendahl. Subsequently it was gathered in Oaxaco by Mr Ross, and forwarded to Mr. Barker; and large quantities collected more recently by Mr. Hartweg, in very elevated districts, in San

Bartolo,—where the thermometer occasionally sinks below the freezing point,—have been received by the Horticultural Society. Since then, it has been imported by different individuals, and is now, comparatively, a common species in Orchidaceous collections.

Speaking of the situation in which Mr. Hartweg discovered it, Mr. Bateman observes:—"This habitat, so unusual for an Orchidaceous plant, will go far to explain the ill success that has hitherto attended its cultivation, for while it is comparatively easy to imitate the close and humid atmosphere in which most of the tribe are found, it is infinitely more difficult to provide a substitute for the pure air and frequent changes of temperature in which these mountain epiphytes would seem to delight. Indeed so signal in the case of *Lælia majalis* has been the failure of even the most experienced cultivators, that although there was scarce a collection that did not contain it, still did it obstinately refuse to flower, except in the solitary instance when it yielded to the skilful treatment of Mr. Dillwyn Llewellyn, of Penllergare."

The species still continues to manifest a decided unwillingness to flower, and very few of the many who possess plants, have yet been fortunate enough to succeed with it. The routine practised by Mr. Llewellyn is well worth attention, and we therefore subjoin a brief outline, as detailed in the work above quoted. The plants were potted in a rough fibrous peat, and kept almost dry in a low temperature until the buds began to enlarge, when they were supplied with a hot and humid atmosphere, and regularly watered till the buds attained their full size. Moisture was then gradually withdrawn, and the plants again removed to a cool atmosphere.

It may, perhaps, prove beneficial to place the plants in a dry frame, after the season's growth has acquired maturity, and expose them fully to the air during fine weather.

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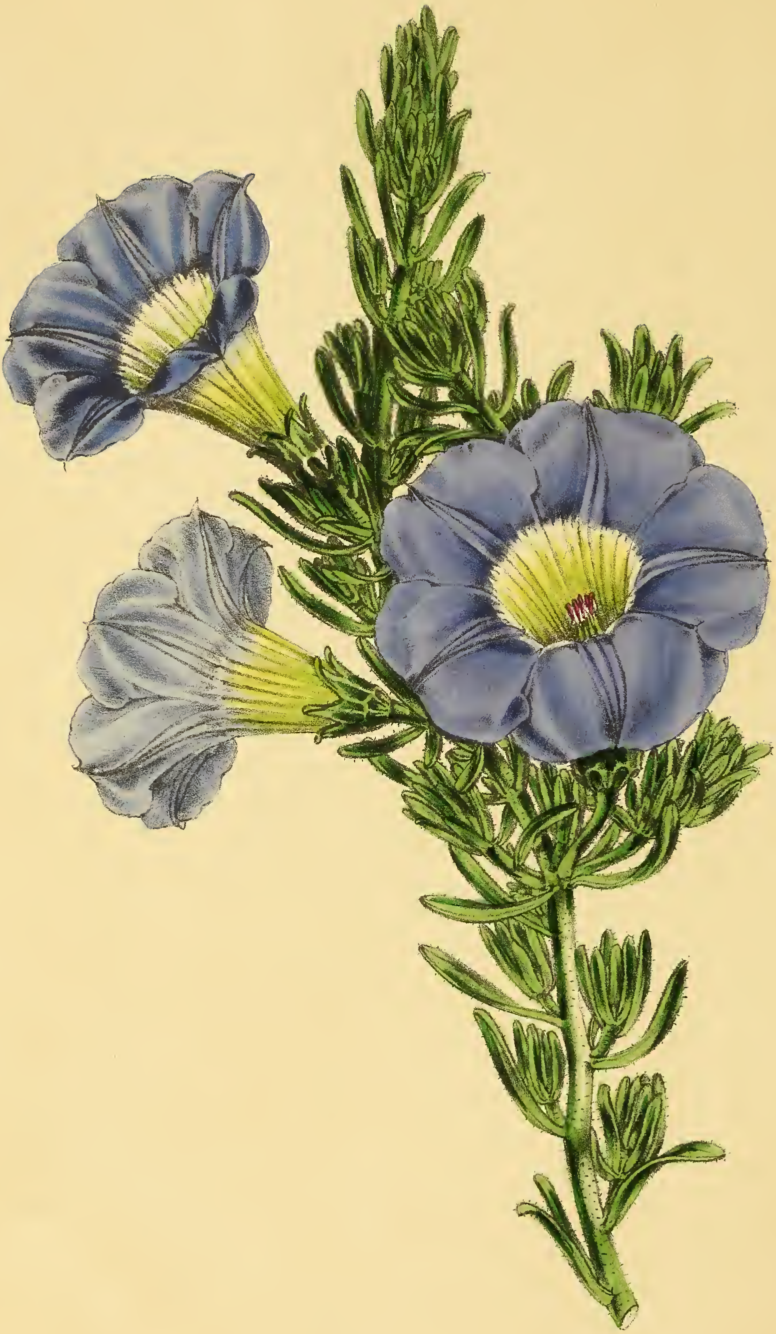


S. Holden del & Lith.

Alona cœlestis.

ALÒNA CŒLÉSTIS.

(Cœrulean-flowered Alona.)

Class.
PENTANDRIA.

Order.
MONOGYNIA.

Natural Order.
NOLÀNACEÆ.

GENERIC CHARACTER.—*Corolla* campanulate. *Ovaria* numerous, one to six-celled. *Nuts* or *Drupes* one to six celled, with fewer seeds; opening at the base.

SPECIFIC CHARACTER.—*Plant* a somewhat succulent, branching, evergreen shrub. *Leaves* sessile, curving slightly upwards, almost teretiform, channelled beneath, fascicled. *Peduncles* nearly twice the length of the calyx, hairy. *Calyx* five-cleft, segments nearly equal, and terete at the point. *Corolla* with pilose plaits. *Nuts* sometimes many-celled.

REPEATED attempts have been made to introduce some of the fine shrubby plants—till very recently referred to the genus *Nolana*—which have been known to exist on the shores of the Pacific about Coquimbo and Valparaiso; all these, however, failed in their object, till in the spring of 1843, Mr. Best, gardener to Alexander Park, Esq., of Merton Grove, Surrey, (now of the Abbey Nursery, Reading, Berks,) having procured a packet of seeds collected by Mr. Bridges, was fortunate enough to rear the plant from which we were obligingly furnished with the opportunity of preparing the annexed coloured figure.

Besides the present, Dr. Lindley has enumerated in the new genus, *Alona*, five other species of a shrubby character from the same neighbourhood, together with two annual and one herbaceous perennial species. It is worthy of remark, that all the shrubby kinds grow erect and have terete leaves, whilst the remainder are prostrate with plain foliage.

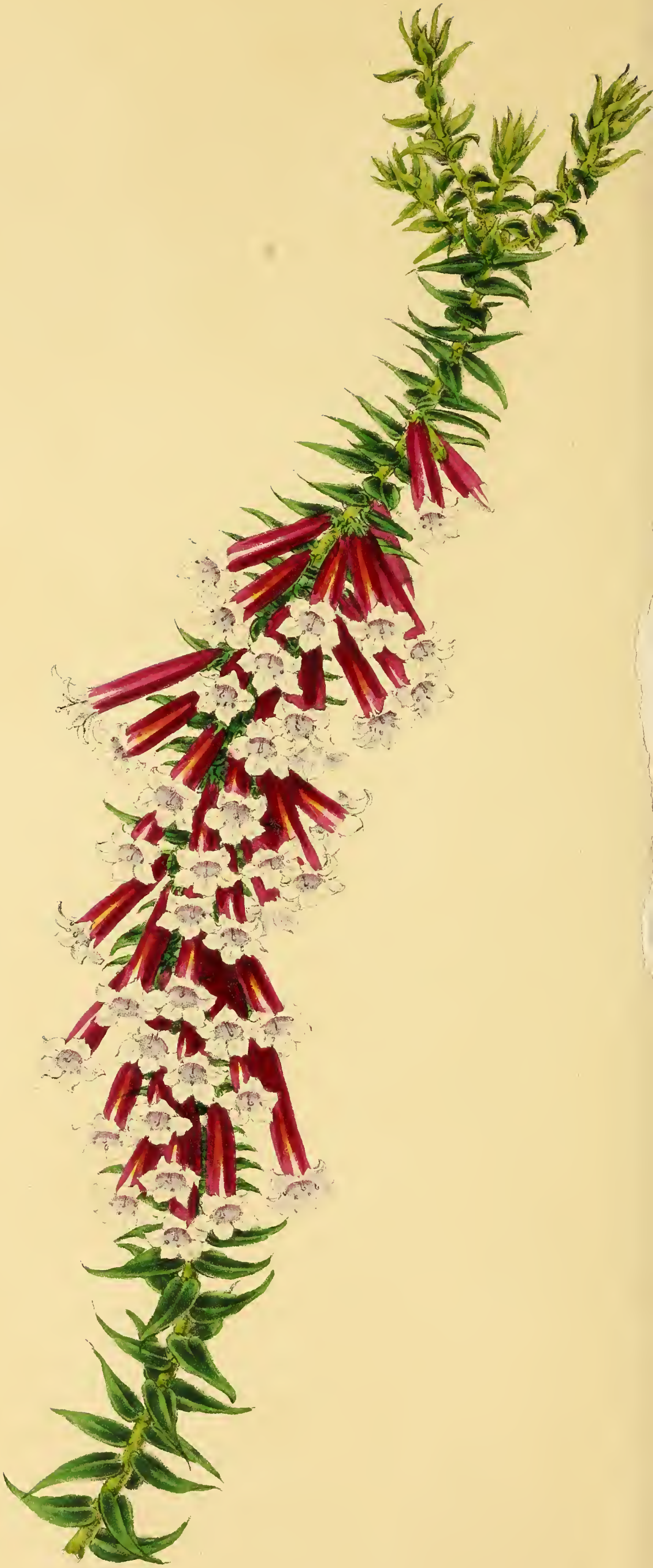
The habit of *A. cœlestis* is that of a bushy evergreen shrub, emitting numerous lateral shoots, and capable of being kept densely compact. The flowers are large, and always produced near the tip of the shoots, and continue for eight or nine days after expanding before they begin to fade. From the numerous flower-buds in various stages of development which we observed on Mr. Best's plants, it is evidently a free-flowering species; and a large plant in full bloom must be a magnificent object. Mr. B.'s largest specimen is already about two feet high, and proportionately bushy, and having flowered when little more than twelve months from seed, favours the opinion that as it acquires age it will be as prodigal of its blossoms as the common *Petunia.* Young plants not more than a few inches high, raised from cuttings during the last summer, flowered in the autumn.

That it will bear exposure in the summer season has been fully proved by several specimens in pots which have flowered without any protection. It will, doubtless, therefore, be a most useful addition to the flower-garden; and although the shoots naturally assume an upright posture, they may easily be bent down, and pegged to the ground; and by thus keeping them in a recumbent position the emission of laterals will be encouraged, and the disposition to bloom increased.

In its pot-culture, Mr. B. finds it indispensable to maintain a uniform humidity about the roots. It grows well in a good friable loam mixed with peat in nearly equal proportions. Fully one-third of the depth of the pot should be filled with potsherds, and a quantity also mixed with the soil, as the roots delight to cling around and run amongst them. Water must be liberally supplied, as the leaves soon turn yellow and fall off, if the soil is permitted to get in the least dry. In the winter season, it is necessary to keep them in an airy part of the green-house, but even then they require the mould to be kept rather moist.

It may be propagated by cuttings prepared in the ordinary way, which take root immediately, when inserted in sand, with a gentle bottom-heat. Mr. B. has already got a tolerable stock of saleable plants at the Reading Nursery.

The generic appellation is merely a transposition of the letters in the primitive name, *Nolana*, which is derived from *nolo*, a little bell, alluding to the campanulate form of the flowers.



Holden del et Lith

Epacris miniata

EPÁCRIS MINIÀTA.

(Vermilion Epacris.)

Class.
PENTANDRIA.

Order.
MONOGYNIA.

Natural Order.
EPACRIDACEÆ.

Generic Character.—*Calyx* coloured, many bracteate; bracteas of the same texture as the calyx. *Corolla* tubular, limb beardless. *Stamens* epipetalous. *Anthers* peltate above the middle. *Hypogynous scales* five. *Capsules* having the placentas adnate to the central column.—*Don's Gardening and Botany.*

Specific Character.—*Plant* an erect, branching, evergreen shrub. *Branches* tomentose. *Leaves* sessile, cordate, mucronate, smooth. *Flowers* solitary, pedicellate, pendulous. *Calyx* lobes and *bracteas* aristate, sublanate at the margins. *Corolla* cylindrical, four times as long as the calyx, with an expanding limb.

Among the many fine things which have been produced during the last season, there is perhaps none which appear likely to acquire a more extensive celebrity, than the present fine species of *Epacris*. It is unquestionably very superior to every other of the numerous members of this delightful genus of greenhouse plants which have hitherto been detected. The nearest approach to it which our collections possess, are the *E. grandiflora*, and the several slightly differing varieties comprehended under the name of *E. autumnale*. But these fall far short of the brilliant hue of *E. miniata*.

Dr. Lindley says, "It is very doubtful whether the plant can be regarded in any other light than a beautiful variety of *Epacris grandiflora*. We are unable, indeed, after a diligent comparison, to discover any distinction beyond the more bristly nature of the sepals and bracts, which are moreover rather more woolly at the edge. In *E. grandiflora* these parts are sharp-pointed, but in this they terminate in a slender bristle. This is too slender a difference on which to found a specific distinction; but the fruit which we have not seen may be peculiar, and at any rate the point may remain open for further investigation."

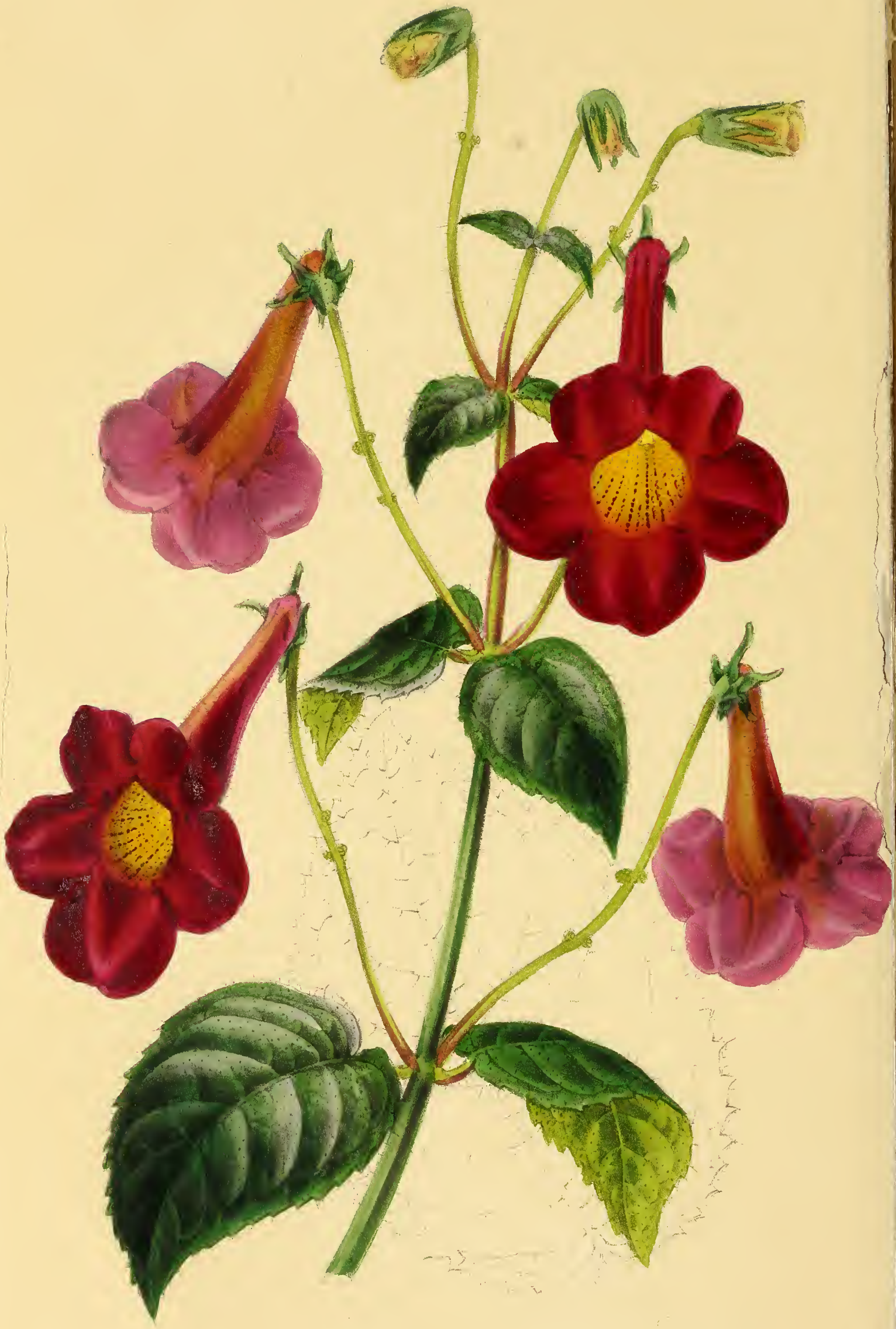
It is a robust free-growing kind, and branches liberally. It seems likely, moreover, that, by a little management, flowering plants may be had for the greater part, if not for the whole of the year. Messrs. Loddiges have had a succession of specimens in bloom since last May, with scarcely an interruption; and a more charming plant can scarcely be imagined than one of these, arrayed with its white-tipped vermilion blossoms, extending in lines along the branches for a foot or eighteen inches.

It is found wild on the eastern coast of New South Wales, from whence seeds were forwarded, by a friend of the Messrs. Loddiges, to the Hackney Nursery. The botanist before quoted observes :—" It has been reported that it is one of the many discoveries made by Mr. Gunn, but we do not see either it or the *E. grandiflora* in any of the extensive collections made by that great investigator of the Tasmanian Flora."

We may here advert to a prevalent source of mischief amongst the delicate-rooted plants of this tribe—permitting a hot summer's sun to shine direct upon the pots. Much of the sickly and stunted appearance which these plants assume, springs from the injury communicated to the roots in this way. A bright burning sun should always be carefully intercepted ; and where the plants are set out of the houses for the summer, means should also be provided for protecting them from long-continued or heavy-dashing rains. Both these ends may be accomplished by a temporary frame-work furnished with a moveable canvas covering.

Cuttings furnish a ready means of increase ; and they may be taken off at almost any season, but usually take root most easily in autumn or early spring.

The entire stock is at present in the hands of Messrs. Loddiges, who, we understand, intend letting it out about May or June next.



S. Holden del. et Lith.

Achimenes hirsuta.

ACHIMÈNES HIRSÙTA.

(Hairy Achimenes.)

Class.
DIDYNAMIA.

Order.
ANGIOSPERMIA.

Natural Order.
GESNERĀCEÆ.

GENERIC CHARACTER.—*Calyx* with its tube adnate to the ovary; limb five-parted; lobes lanceolate. *Corolla* tubularly funnel-shaped, often swollen at the base; limb five-cleft; lobes sub-equal, sub-rotund. *Stamens* four, didynamous; *anthers* not cohering. *Rudiments* of the fifth *stamen* situated below the base of the corolla. *Nectary* glandulose in a small ring. *Style* slightly thickened towards the stigma, oblique or with two separate lobes. *Capsule* nearly two-celled, two-valved; placentas parietal, subsessile.

SPECIFIC CHARACTER.—*Plant* an herbaceous perennial, with tuberous roots. *Stem* erect, simple, hairy. *Panicles* bulbiferous. *Leaves* cordate, serrated on the margin, and hairy on both surfaces, *Peduncle* solitary, as long as the leaves. *Corolla* a long, nodding tube, with a flat limb; segments rounded and serrulated at the edges.

FEW genera are more popular, and deservedly so, at the present day with the inquirers after truly valuable ornamental plants, than *Achimenes*. The gorgeous specimens of the several recent augmentations of new species comprehended within its pale, which now form such a conspicuous feature in all summer exhibitions of floricultural skill, bear undeniable testimony of the sterling worth of the genus; and it is with pleasure that we here give prominence to another of its specious members.

British collections are indebted to a sheer accident for the possession of this engaging plant. The seeds or small tubers had been fortuitously scattered amongst the materials which surrounded a collection of Orchidaceous plants received from Guatemala, by Messrs. Henderson, of Pine-apple Place, in the early part of 1843; and these having been preserved and placed in a warm atmosphere, young plants were soon discovered springing up amongst them, which at first were thought to be *A. pedunculata*, but on producing their flowers in the following autumn, proved a distinct and entirely new species.

Its affinities are with *A. pedunculata*, which it very closely resembles in many respects. The stem, however, is more robust; and the internodes being shorter, and the leaves larger, it has a better furnished appearance. Like its ally it produces many scaly bulbs or tubers from the bosom of the leaves, especially on the upper part of the plant; and these are always most numerous as winter approaches. Flowering specimens vary in height from one to two feet and a half.

We were kindly supplied with samples for our drawing both by Messrs. Henderson and R. G. Loraine, Esq., of Wallington Lodge. In the collection of the latter gentleman we noticed several plants last autumn with flowers of a much brighter tint than usual. This was probably in a large measure the result of a complete exposure to light, as the species has always a dull and clouded appearance when cultivated in frames, or shady situations. But the system of furnishing warmth to the roots in conjunction with atmospheric heat, constantly practised by Mr. Loraine, has undoubtedly a very considerable influence on the colour of flowers.

The prolific sources of multiplication possessed by this plant, enable the propagator to increase it to an almost infinite extent. In addition to the facilities of extension afforded by the scaly tubers of the stem, it may be propagated by the leaves like a *Gloxinia*, and also by the underground tubers. The last, however, produce the strongest plants, and are sufficiently numerous for ordinary wants.

The general hairiness of all its parts has prompted the specific appellation.

THEORY OF HEAT AND ITS PRACTICAL APPLICATION.

The application of heat becomes daily of more importance: we can scarcely look into a paper or a periodical without meeting with some announcement of a new adaptation of the hot-water processes to the heating of horticultural erections.

The philosophy is the same in all; for it is a principle of the law of radiation, established in practice, that *fuel*, however applied, can afford but a certain quantum of heat. Hence, no one should be deceived, or suffer himself to be misled, either by the assurances of others, or by the flattering suggestions of his own hopes, that more heat can be radiated than the quantity of combustible elements can yield. Whether, therefore, a good brick *flue*, led all round a house, terminating in a well-adapted shaft; or a series of iron or earthen pipes, or a tank and a tiled channel for the flow of hot water, be the media of conduction, the volume of flame, or incandescent matter, in the primary furnace, can produce no more or no less radiant heat than is equivalent to the quantity of oxygen, hydrogen, carbon, and sulphur, consumed, and chemically changed.

There are, however, modifications of apparatus, which will economise and duly distribute the volume of heat produced; and as economy is of necessity, as well as choice, our governing principle in every branch of practical horticulture, as, moreover, our circle of observation becomes more and more extended, it will be the aim of the present notice to point out some of those modes of appliance, which cannot fail to be useful, and to a certain extent consistent with liberal economy.

In the first place, however, the object to be pursued, and the quality of the heat to be produced, should be maturely considered; for it is anything but wise to employ but one species of machinery for every purpose. If the object be the growth of successive pine-apples, a hot-water tank, and channels constructed of porous materials, must be most propitious, inasmuch as they keep up a degree of atmospheric moisture, which extends nearly to saturation. The Pine revels in vapour, and so, in floriculture, does the Gardenia, and a great variety of some of the most choice and beautiful plants which bear winter forcing. In a house so constructed, we now see Gesnera, Gloxinia, Azalea indica, Euphorbia Jacquiniflora, Plumbago rosea: the last-named plant has, indeed, bloomed for several months, producing two hundred and more blossoms on a single pendulary spike. The moisture of such a house produces neither mouldiness nor decay, provided a temperature of 60° be maintained; even, during a season of bitter wind, total gloom, and severe frost, like that which was experienced during the whole course of December.

The chief point which ought to be required is *the presence of the flue within the house*, for by this condition the whole of the heat, be the fuel what it may, is appropriated. The furnace-boilers, that directly claim consideration, are cylindrical, made by a workman, little known, but who has erected a few for private gentlemen. They resemble two glass argand-lamp burners of different breadths, the smaller placed within the larger. Thus, supposing the small inner cylinder to be eight inches wide in the clear, and the outer one twelve inches, a space (allowing for the thickness of the metal) of two to three inches remains, and this space contains the water. The two cylinders are united at top and at bottom by rims, either brazed, if of copper, or by process of casting in the mould, if of iron. The bottom of the inner cylinder rests upon a case, into which slides a sort of gridiron grating, on which the fire rests. An exit, or flow-pipe, passes from the outer cylinder, half an inch below its rim, which space is therefore occupied by a thin stratum of air, that, by expanding under the force of heat, propels the water into the pipes or channels, round which it circulates, till it arrives at the return-pipe; *this* enters the boiler near its bottom by a rapid and steep inclination, thus insuring the flow of the water by the conjoint agency of atmospheric pressure and gravitation.

This simple machinery is excellent in its capabilities, but is susceptible of improvement, as we shall now endeavour to prove; but, in justice, it must be understood that there are no et ceteras in the charges; a distinct calculation can be made from the first; and a man, therefore, knows, to within a few shillings, what expenditure he must incur: a very important consideration this, since it would be easy to show from evidence that a party who has been induced to purchase a new-fashioned boiler of small dimensions, very specious at first sight, at the cost of five or six pounds, found himself, in the long run, charged above forty pounds, ere all the adjuncts were properly adapted, and in the very first winter an entire crop of grapes was lost in consequence of the utter uncertainty of the fire, which, if minutely attended to, raged on to the temperature of 100° to 120°, or died out at once, if not continually fed, at a loss (during frost) of 80°.

The vice of our cylinder furnaces is, that they require *coke* as fuel, and this implies undeviating attention. There is, however, a boiler of new construction announced, on which the fire acts *within* and all round the outside of the case of water. At a future period we may be enabled to notice the machinery more particularly; but for the present will endeavour to describe a furnace which will work both flue and water channels by the aid of the commonest and least expensive fuel, and it is one that any gentleman or grower for the market can have constructed under his own superintendence, by an iron founder and intelligent labourer who knows how to handle a trowel with precision.

The model was suggested by inspecting two cast iron furnaces, with double doors and grating corresponding in appearance with the common brick ovens used in forcing houses. Their original cost was 10*l.* each; but they had already gone through the work of vinery-forcing for twenty years without repair. Now, upon this principle, let the boiler be a cast-iron oven, but instead of being single, let it be cased, or double on the two sides and top, leaving a space in front for the door, and another at the further end for the exit of the smoke.

The further opening should contract so as to form a neck like that of a flue. The flow-water pipe should pass from the upper side of the case. The lower or return-pipe ought to enter at the lowest part of the end, or at one of the sides. The fire will, of course, occupy the centre of the furnace, and may be made to consume coal, cinders, or breeze. Thus, there will be an oblong oven, with a door fitting the external or front orifice, and terminating in a cast-iron neck, passing into a perfectly sound brick flue, to run along the entire course of the back wall, and to enter the chimney-shaft at the further corner.

The dimensions of the furnace, the breadth of the water-case, and, in consequence, the volume of water to be employed, must be regulated by the size of the house, and the object which the gardener has in view. In our next article we shall show how much may be effected by varied modifications, all done at home, and without the affectation of minutiæ which too frequently is paid for at gold price, and to little purpose.

What is now urged, as matters of primary importance, is, *first*, the absolute necessity of husbanding *all* the induced heat,—*second*, the combustion of cheap, common fuel, which can be kept alight from closing time till eight o'clock the following morning, avoiding the cruelty of night labour, and every common source of anxiety.

Experience has proved to us, by two examples, that coke fire cannot be maintained during night in cylinders, and thus it becomes troublesome and costly; and if a flue be led from a coke furnace, it becomes hot to a small distance only, and, therefore, does not possess all the advantages derivable from cheaper fuel.

Hot water, as a system, is beautiful and effective, with stout iron pipes, it also combines the properties of the dry flue, and free from sulphurous vapour; but then it is very expensive, and, therefore, at the command of the opulent only. With earthen pipes, or cemented brick channels, water produces much vapour, repulsive of the red spider, and, as before stated, very genial to a variety of plants. But it appears less favourable, if not inimical to the vinery at the time when the fruit is becoming mature; and also to every plant which suffers from a vaporous atmosphere.

For all the objects of *propagation*, water conducted, first, through a good, slated tank, and thence around the house, produces an admirable effect. The equable distribution of heat is a point of primary importance, and herein a flue cannot compete. It obviates the necessity of fermenting materials, and thus gets rid of leaves, tan, &c., with their endless mutations, and broods of insects. Upon the tank, a bed of sand and bruised charcoal becomes a sweet and unchanging medium of bottom heat, and nothing infests an erection so warmed but the green fly, which is easily kept under by tobacco-paper, prepared with, and retaining, a small proportion of the tobacco, and which also consumes without subjecting the gardener to the inconvenience, if not danger, of superintending the fumigation.

HINTS FOR PROMOTING THE FERTILITY OF CLIMBERS.

The free production of flowers by *many* species of stove and greenhouse climbers has long been a desideratum with cultivators, and various schemes have been devised to overcome the difficulty, without however, except in a partial degree, attaining any extensively useful results. We still find in a majority of instances that peculiar species, and these by no means a very circumscribed number, manifest a decided unwillingness to disclose their flowers, or to disclose them in sufficient abundance to render them the gorgeous and attractive objects which the loveliness of individual blossoms justifies us in considering them likely to prove, if a more fertile habit could be induced. And, indeed, we are not alone dependent on mere supposition for the truth of this, for the accounts which travellers bring of the profuse inflorescence and magnificent appearance which some of these very plants carry in their native wilds, fully demonstrate that the fault does not entirely lie in a naturally unproductive constitution, but rather emanates from our own ignorance of the requisite conditions, or in the partial and erroneous fulfilment of them. This is still further corroborated by particular plants, occasionally, as it were, through purely accidental treatment, becoming unexpectedly adorned with a profuse array of bloom.

By careful observations and inquiries into the circumstances which have once produced such pleasing results, and the manner in which they have acted upon the constitution of the species, nearly all the late advancements in the art of culture have been acquired. And though in some cases these may at first thought appear to be a complete departure from Nature; if they be scrutinously examined, we may confidently assume, that however opposite they may appear in their character from the *modus operandi* of Nature, they are really and truly nothing more than a nearer approach to the same proportion of different agencies that exist in the climate of their native home. Thus we are here unable to supply the same amount of solar light, which plants enjoy in tropical countries; and we can only furnish them with an equal amount of heat or of moisture, in the proportion which these agents naturally bear to each other.

We have offered these preliminary observations by way of preparing the reader for the suggestions we shall presently have to submit, which, being somewhat out of the ordinary line of expedients, might, on a superficial examination, be considered fanciful. It must be remembered that in the artificial treatment of plants, it is rather the application of those conditions or principles by which certain results are obtained, than an actual and strict adherence to the particular *manner* in which they are accomplished in a state of nature, that the cultivator should study to observe.

The most frequent, and, indeed, almost the sole reason of the non-production of flowers by many species of climbing plants, is, unquestionably, a state of excessive exuberance. Thus, we continually meet with plants growing year after year in a vigorous and apparently perfectly healthy state, without ever producing flowers, or the least appearance of a nearer approach to a flowering condition. Some climbers when allowed unlimited space for their roots, will extend themselves to fifty or sixty feet in length without evidencing the slightest disposition to bloom; and as it is necessary in most cases, and desirable in all, to confine them within a far more definite space, unless some means of counteracting such luxuriance and promoting a florescent habit can be provided, these plants are unavoidably discarded from collections—a mode of getting rid of a difficulty, which, it is to be feared, is oftener adopted, than experiments to obviate it.

We have already hinted that an unlimited space for the ramification of roots is one of the primary causes of undue luxuriance. To such an extent is the power of space a cause of the excessive production of branches and leaves, that it has frequently been considered as the only obstacle to the production of flowers; and the benefit derived from cramping the roots in pots is conclusive evidence of the partial efficiency of confinement; though, on the other hand, the frequency of failure, even with a limited range, is enough to show the futility of trusting entirely to it. In conjunction with space, a highly enriched soil tends yet more to augment superfluous growth. In this case, as in the animal kingdom, when nutriment is furnished too liberally for the power of assimilation, a plethoric habit is encouraged, which, instead of being healthy, is a state the most liable to disease, if, indeed, it be not in itself a disease.

It is evident, then, that one of the first operations of the culturist must be aimed at the reduction of the *means* of acquiring a superfluous amount of food; but it must not however be expected that this will at once in all cases prove sufficient to obviate the deficiency in the quantity of inflorescence, though it is a direct means of doing so. And it is necessary, moreover, that the supply of nourishment be not withdrawn suddenly, to an excessive degree, or the consequences will be equally pernicious to fertility. A certain amount of nutritive matter in some way proportioned to the already acquired vigour of growth, is necessary to the formation of those secretions upon which the ultimate disclosure of blossoms depends.

Bottom-heat is undoubtedly a most important agent in furthering the abundant flowering of tender climbers, and, indeed, it is in some measure an essential to the successful treatment of all plants. Many of the methods of creating it, are inapplicable on a large scale; and it is often wholly impracticable to apply them in the summer season in an ordinary greenhouse, without producing injurious effects on a majority of its occupants. And even though this objection should be overcome, it is still liable to assist excessive growth, rather than flowers, unless some degree of limitation is placed on the sources of nourishment in conjunction with it.

Much may undoubtedly be effected towards diminishing vigour by imposing a check on the ascent of the sap through peculiar modes of bending and training the shoots; but these ought only to be regarded as auxiliaries, and not as a main dependence. The aphorism "Prevention is preferable to cure," should never be slighted; for it is better at once to cut off the source, than to attempt to stop a flowing stream.

A few months ago, Mr. Hoare, the well-known writer on the Vine, published a new system of managing the roots of that plant, which if not applicable in its widest sense to many climbing plants, may be applied in a modified degree with a reasonable assurance of success; and to the consideration of this, we would now direct attention.

Mr. Hoare's method for the Vine is to construct compartments for each plant of bricks cemented together, and with a flooring of the same material, so as to prevent the roots from penetrating beyond them. These are filled entirely with equal proportions, well mingled together, of broken bricks, charcoal, lumps of mortar and bones, the three former generally in fragments about the size of a hen's egg, and well soaked in liquid manure for some time previous to use. Smaller or larger pieces may also be added; this should be in some measure regulated by the size of the compartment; and it is necessary that the whole be very compactly placed together. When this work is accomplished, they are covered up with bricks as before set in cement, with the exception of a space where they are left loose for the insertion of the plant, and the administration of fluid.

The advantages claimed for this method, are, that it presents a continual source of food which is never in excess, or, at least, is so conditioned that the plants can rarely obtain an overabundant supply. The substances which afford it are always moist, but never wet, a state which necessarily renders them a much *warmer medium* than ordinary earths; and whilst the roots of a plant are thus placed in a warmer temperature, they are also less liable to be affected by any occasional depression of the atmospheric temperature.

The extensive absorbent powers, and the capability of retaining moisture possessed by brick and charcoal, must be well known to every scientific cultivator. The same powers are also in a large degree common to old decayed mortar; hence when those materials have laid in urine, and are mixed together with a proportion of bones—which are in themselves a manure of the most lasting character,—a fund of nourishment is stored up which is almost exhaustless, and is represented to furnish means of nourishment and facilities for growth, beyond that which can be obtained from a much larger bulk of mere soil.

Although this method is expressly intended by Mr. Hoare for the management of the Vine, we entertain little fear of the success of its application to many climbing plants with strong roots, which have hitherto been found very difficult to flower, or to restrain within moderate limits; but we apprehend it will be necessary to employ a larger number of smaller fragments than is recommended for the Vine.

Perhaps, however, the utility of these substances may be greater and more general when used in conjunction with a small proportion of loose earth, wood-ashes, rotten wood, and leaves in a partial state of decomposition. And in this respect we can speak more advisedly, as our remarks are not merely speculative, but founded on past experiences. In adopting it, the earth need not be mingled with the entire mass, but merely incorporated with the upper portion of it, to assist the plant in its earliest efforts to establish itself; for it is then that a portion of earth seems most essential, and it will through time by the continual ramification of roots, and occasional waterings, be carried in small quantities amongst the lower part of the mass. It is better, too, that it should be primarily employed only in the upper stratum, in order that a larger amount of the finer fibres may be encouraged in the vicinity of the surface.

In greenhouses, where from their construction the climbers are often unavoidably planted beneath the stages, or in other situations beyond the reach of direct solar light, the use of any earth of a retentive character cannot be too highly censured; and it is in such cases as these, that confined compartments and the use of extremely porous and absorbent substances are the most conspicuously beneficial. We must not, however, be understood to recommend thrusting the roots and lower parts of plants beneath the stages, where they are, by consequence, exposed to all the drip from the pots above, as well as to other injurious influences, but only to recommend the practice above enjoined as an ameliorative, when these conditions are inevitable.

But it is not alone in the greenhouse and stove that these and similar systems operate favourably in the furtherance of a flower-bearing maturity. They are as prominently evinced in the open air; and many plants which in common soils rarely display flowers, are thus brought to disclose them in profusion. The *Tropæolum tuberosum*, a plant which, especially in the northern and more inland counties, can scarcely in ordinary summers be induced to develop blossoms if planted in an open border, but continues growing with unabated exuberance throughout the season, is an illustration of this fact. Even in loose lime and brick rubbish alone, if unconfined at the roots, it pushes with an excess of vigour. But when the roots are limited to a small space filled with a like material, its luxuriance is sufficiently reduced to allow of a liberal emission of bloom. A like result attends the same management of the rampant *Cobæa scandens* and similar plants, and the benefits are not confined to increasing the quantity of bloom, and circumscribing the growth of the plant; but the flowers of several attain a brighter colour, and are produced at an earlier season, which is no unimportant thing in the culture of half-hardy plants. In these two latter particulars there is no plant, perhaps, more beneficially altered than the old Scarlet Pelargonium, now so extensively grown in the flower-garden.

For plants like these, however, unless they are continually cultivated in the same place, the yearly formation of confined spaces would present a formidable obstacle; the material, nevertheless, might be employed with some advantage, and especially in damp situations. But it is principally beside conservative walls, trellis walks, and other situations where the plants are either permanent, or renewed every year, that it will be completely available in the open garden.

On such plants as *Butea frondosa*, and *B. superba*, the beautiful *Bugainvillœa spectabilis*, and the large trumpet-flowered *Solandra grandiflora*, all of which are handsome stove plants that grow to an amazing length when planted in a border, and are seldom seen to flower, the system appears calculated to exert considerable influence. And in conjunction with a judicious course of pruning and routinal management, we may confidently expect that many of the so-called stove climbers, such as the *Stephanotis*, several species of *Passiflora* and *Bignonia*, may be induced to thrive and blossom freely in a greenhouse. It is an essentially different practice from growing in poor soil in a small pot exposed to the drying and varying action of the atmosphere, and yielding an uncertain and inconstant amount of nourishment. That is a starving system, and is followed by a yellow, sickly appearance; this, a limitation of growth, without disturbing the health.

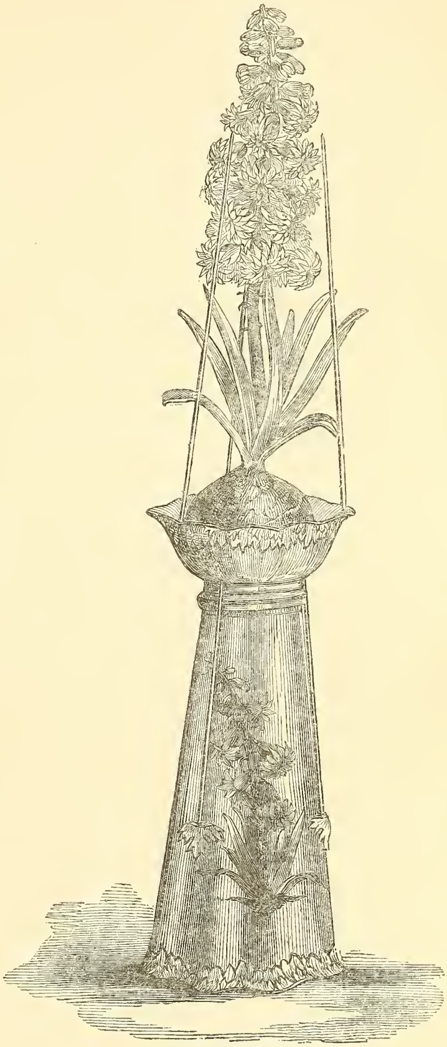
IMPROVEMENTS IN FLOWER POTS.

In a former volume we furnished some suggestions for improving flower-pots, and directed attention to an improvement patented by Mr. Hunt. Since then the principles upon which our remarks rested have been more generally acknowledged; and the benefits accruing from planting in shallow pots, and facilitating a circulation of air through the soil, are now no longer matters for speculation, but the confirmed principles of practice. And it is with pleasure that we find our hints have been carried out by Mr. Hunt, in conjunction with the leading features of his original patented articles; and as these are executed after various handsomely ornamented patterns, as well as in the common material, they are equally available for the greenhouse or the drawing-room. For such plants as Gloxinias, Achimenes, and Tropæolums, they cannot be too highly esteemed.

But whilst for the cultivation of many exotics, shallow pots are thus highly rated, we must reserve a special exception in the case of truly bulbous plants, which push downwards long fibrous roots without lateral rootlets, such as the *Narcissus* and *Amaryllis* tribes. A deep pot is notoriously the most appropriate for these plants. Exclusive of this point, however, the remarks which have been advanced on the patent pot with respect to other plants, are equally applicable to bulbs; and to remedy this exception, they are now manufactured of a greater depth, specially for these plants.

These modifications cannot fail to be useful; but the improvement which we now desire more particularly to notice, is Mr. Hunt's *New Hyacinth Pots.* These are of a similar shape to the Hyacinth *glasses* in common use, and are executed in China-ware after various patterns, forming, by themselves, an elegant ornament.

Bulb-*glasses* are open to two objections,—they admit light to the roots, which ought to be kept in darkness, and they scarcely allow of any neat support for the foliage and flower-stems. The former of these is partially obviated by darkly-coloured glass; but both are effectually removed by Mr. Hunt's pot. They totally exclude light, and a neat conveniency for support is provided. The latter consists of three brass wires, which are bent to fit the mouth of the pot, and rise about five or six inches above it. They are fixed to the pot by passing through holes made above the neck, the lower end resting in a socket provided on the exterior, as shown in the accompanying woodcut.



Another advantage necessarily follows from this arrangement. When bulbous plants are cultivated in water, *the bulbs* ought never to be in immediate contact with it. But where the care of this matter is intrusted to persons unacquainted with the nature of plants, it is not unfrequently neglected. The perforation, however, necessary to fix the wires, provides a way of escape, before the water can reach the bulb; at least, when bulbs of a fair size are selected. It might, nevertheless, be still more effectually guarded against by making another perforation immediately below the neck.

Each of these advantages, when viewed disjunctively, may appear somewhat trivial to a superficial mind, and incapable of conferring any important benefit. But no one will be disposed to despise minor auxiliaries who has been accustomed to think of them in their proper and genuine light, as so many indispensable agents in compassing great things. It is a strict observance of lesser points that fills up the chasm between good and bad cultivation, and we may consider the new Hyacinth-pots as another progressive step.

FLORICULTURAL NOTICES.

NEW OR BEAUTIFUL PLANTS FIGURED IN THE LEADING BOTANICAL PERIODICALS FOR DECEMBER AND JANUARY.

ACHIME'NES PI'CTA. This splendid plant, introduced from Mexico by the Horticultural Society, is "amongst the greatest ornaments of our stoves during the autumnal and early winter months. Nothing can exceed the beauty of the foliage, whether we consider the velvety and orange hue of the pubescence, or the rich deep green of the ground-work. Nor are the flowers wanting in charms; they are copious though solitary, from the axils of all the upper leaves, yellow, gorgeously tinged and spotted with red." Sir William Hooker thinks it rather referable to *Gesnera* than to *Achimenes;* he says, "In habit it is surely closely allied to *Gesnera Zebrina*." (Although the flowers are often solitary, it is but just to add, that under superior management they are generally produced four and five from the axilla of each of the upper leaves, and we have seen as many as seven and eight together on a plant, grown by Mr. Green, gardener to Sir E. Antrobus, at Cheam. It is, in fact, a most profuse blooming plant.) *Bot. Mag.*, 4126.

ANEMO'NE OBTUSILO'BA. A pretty Indian alpine herbaceous plant with white flowers, identical with the *A. Goveniàna*, of Dr. Wallich, and nearly allied to *A. narcissiflora*, from which it differs in its longer flower-stalks, and the less prominent divisions of the leaf. "The native situation of the species is stated by Dr. Royle to be the Choor mountain of the Himalayas, at elevations of from 10,000 to 12,000 feet, flowering in May." It is perfectly hardy, growing about six inches high, and well adapted for pot-culture, or a shady or damp situation on rock-work. It is easily increased by seeds, and flowers in June and July. The plants in this country were reared at the Horticultural Society's Garden from seeds presented by the Directors of the East India Company. *Bot. Reg.*, 65.

ANGULO'A CLO'WESII. Collected in Columbia by Linden, in 1842, and first flowered in Europe by the Rev. J. Clowes, of Broughton Hall, Manchester, in March, 1844. The flower scapes support but a single blossom each; as many, however, as four or five are sometimes emitted from one pseudo-bulb. "The main difference between *Anguloa* and *Lycaste* consists in this, that in *Lycaste* the lateral sepals are placed edge to edge, in the manner of a true *Maxillaria*, but in *Anguloa* they overlap each other considerably; this peculiarity causes a striking difference in the appearance of the flowers of the two genera, and, in fact, gives that of *Anguloa* the look of a *Mormodes*." *Bot. Reg.*, 63.

ARME'RIA CEPHALO'TES. In the plant figured under this name we find the *Statice pseudo-armeria*, published in our last year's volume. It appears that, besides these two names, it has also been enumerated by different botanical writers as *A. latifolia*, *S. cephalotes*, and *S. armeria major*. Sir W. J. Hooker observes that though, perhaps, long lost to our collections, it was originally introduced to the Kew Gardens in 1775 by Nicholas de Jacquin; "and was probably, previous to that time, detected at Algarbia, in Portugal, by Masson, while collecting for his Majesty George the Third. It seems to be a native of several parts of the coast of Portugal, and also, according to Des Fontaines, of Barbary also." *Bot. Mag.*, 4128.

BACKHO'USIA MYRTIFO'LIA. "This very pretty greenhouse shrub, its conspicuous petaloid calycine segments giving the idea at first sight of large corollas to the flowers, was found by Mr. James Backhouse in the Illawara district of New South Wales; and not being referable to any myrtaceous genus yet described," adds Sir W. Hooker, "Mr. Harvey and myself are anxious to dedicate it to our mutual friend now mentioned, who, amidst his various and arduous labours of love, during a voyage to, and journeyings in, the various parts of Australia and South Africa, still found leisure to collect and to describe in manuscript many interesting plants, which his previous botanical acquirements enabled him to do with judgment. The greater number of these specimens are placed partly in the hands of Mr. Brown, and partly in those of the editor of this work. Less perfect specimens of the same plant were detected by Mr. Allan Cunningham, in a state of bud only, 'South of the Colony' of New South Wales, and marked, 'allied to *Eugenia elliptica*;' and what confirms the stability of the genus, is the discovery by Mr. Allan Cunningham of a second species (which exists in Mr. J. Smith's Herbarium) on the Hastings river. With regard to the present individual, it has been introduced to our gardens by Mr. Low, of Clapton, to whom the Botanic Gardens of Kew owe the possession of it, and there it forms a small tree-like shrub, six to eight feet high." According to Mr. Backhouse, it grows to a tree sixteen feet in height; with slender branches, furnished with smooth ovate acuminate leaves, often ciliated at the margin. The white flowers are borne in corymbs, and are often produced on very small plants, soon after being struck from cuttings. *Bot. Mag.*, 4133.

Barbace'nia squama'ta. This plant differs from *B. tricolor* and *B. tomentosa*, two unintroduced species published by Martius, which it resembles in the colour of the flowers, and general size of the plant—" in the absence of clothing to its leaves, in the form of the flower, and especially in the nature of the filament of the anther, which is here unusually short and broad, and can hardly be termed bifid." It has a short, dichotomous stem, clothed with the scale-like remains of former leaves (from which it obtains the specific name); the perfect leaves vary from five to eight or nine inches in length, and grow in tufts at the top. The flower-stalks spring from amongst the terminal leaves, and each supports a single six-cleft blossom of an orange-red colour. The plants of this genus inhabit mountainous districts, and are usually found in dry exposed situations amongst micaceous schist, and on rock of other primeval formations. (See Vol. XI., p. 75.) *Bot. Mag.*, 4136.

Bego'nia rubricau'lis. It is a matter of regret that, of the numerous fine things imported to Britain, so many are received without any memoranda of their native countries and the situations they occupy in a wild state. This is the case with the present plant, which was received at the Birmingham Botanic Garden without name or clue to its origin. The leaves are supported on fine red petioles rising directly from the ground, and are of an obliquely ovate form, undulated, sinuately lobed, and closely serrated and ciliated on the margin, of a full bright green, and wrinkled with reticulated veins. The scapes are much longer than the leaves; paniculately branched above, with several large handsome blush-coloured flowers, suffused with a deeper tinge. The peduncles and pedicels, as well as the fruit, are of the same deep red which characterises the petioles and flower-scape; and the *tout ensemble* bears a remarkably neat, distinct, and enlivening aspect. *Bot. Mag.*, 4131.

Epide'ndrum di'pus. " One of those innumerable species inhabiting South American forests to the enumeration of which there seems no end. It was imported by Messrs. Loddiges, from Brazil, and produced its densely clustered panicles of sweet-scented green, brown, and white flowers in January, 1844. In many respects it approaches *E. nutans*, but its panicle is very much more compact, its colour is more that of *E. paniculatum*, and the form of its lip is different, the two terminal lobes being very narrow, and bowed back like the fore legs of the splay-footed truffle dogs." It is a caulescent species with long flaccid and somewhat acuminate foliage, and the many-flowered panicles of blossom assume a nodding direction. It belongs to the section *Spathium*, and will be more useful for the delicious sweetness which the flowers exhale, than for any showy trait they possess. *Bot. Reg.*, 4.

E'ria vesti'ta. " Of the shaggy Erias this is one of the more remarkable, having so much the habit of a *Dendrobium* that it was so considered by Dr. Wallich; for at the time of the publication of that indefatigable botanist's laborious catalogue, it was not known that all the species of *Dendrobium* are hairless, or nearly so. What is not a little singular is, that these plants have very frequently tawny or reddish brown hairs, if they have any. The history of the production of such a colour would be a good subject for examination by some phyto-chemist. The flowers too are reddish brown externally, white inside, and hang down in pendulous spikes, which are longer than the leaves. The species is a native of the Indian Archipelago. Dr. Wallich's collectors had it from Sincapore, and Mr. Cuming sent it from Manilla (?) to Messrs. Loddiges. It also occurs, in a small flowered state, among Mr. Cuming's dried plants from the Phillipines, marked ' Laguna.' " In an ornamental light, the plant is chiefly remarkable for its neat and well clothed habit, as the blossoms are not favoured with any very attractive feature. It thrives better in a pot or basket than attached to a block of wood, and needs a warm, humid, and shaded atmosphere in summer, and the converse treatment in winter. *Bot. Reg.*, 2.

Gaylussa'cia pse'udo-vacci'nium. A fine *Andromeda*-like plant with secund racemes of neat and showy globular crimson blossoms, imported by Messrs. Loddiges from Brazil. It is a woody stemmed shrub, with smooth elliptical foliage, and altogether constitutes an excellent greenhouse plant. *Bot. Reg.*, 62.

Gloxi'nia tubiflo'ra. "This beautiful thing was raised in the Glasnevin gardens, from seeds received from Mr. Tweedie, of Buenos Ayres. Sir W. Hooker, however, suggests that it is really a native either of South Brazil or Paraguay. It is a charming greenhouse plant; its lovely snow-white flowers being very agreeably scented." It is "so unlike the Gloxinias of our gardens (with the exception of *G. hirsuta,* or indeed the Brazilian *G. gracilis,* which more resembles it), that it can hardly be regarded as a genuine species of the genus, to which its naked inflorescence is much opposed." "It cannot be a Gesnera because its corolla is only protuberant on one side, and because its anthers hold together when old; it cannot be an *Achimenes* because its anthers are joined together, and it has not a ring round the ovary; therefore it would appear that it *must* be a *Gloxinia.* And so Sir W. Hooker has considered it, observing, however, that it 'seems to have nearly as strong a claim to be considered a *Gesnera* as a *Gloxinia,* or rather it appears almost to unite the two genera.'" An essential feature in the management of this plant is, to be careful to drain the pots well, and to choose a soil of such a texture that it may neither permit water to pass too quickly through it, nor yet retain it too long, by settling into a solid mass. A fair supply of water is needful to acquire vigour and maintain health, but any impediment to its circulation is destructive of both. *Bot. Reg.,* 3.

Ixioli'rion monta'num. "This long-desired and very ornamental plant was sent to Spofforth by the kindness of J. Cartwright, Esq. He received it at Constantinople from Colonel Shiek, who with equal kindness exerted himself to discover it, where it was found, on the hills in the neighbourhood of Teheran. The bulbs are very remarkable, looking rather like large nuts with a dark chocolate-coloured smooth coat. When they are ready to vegetate, the fibres prepare to burst out at bottom with the same appearance as those of a tulip. The plants are perfectly hardy; for having produced leaf in the autumn, and their growth having been encouraged by the unusual mildness of the first portion of the winter, they were not in the least discoloured by the snow and the very severe frosts of February; and having flowered beautifully in May and June they perfected good seed in July. Whether or not it will be better to take up the bulbs to be dried in summer and reset them in autumn, is not yet ascertained; but it will probably not be necessary. Its native region extends from Syria to the southern part of Songaria. The flowers are purplish blue, and nearly two inches from the tip of one segment to the tip of the opposite one. It is the *Amaryllis montàna* of Redouté and the *A. tatarica* of Pallas. *Bot. Reg.,* 66.

Lapla'cea semi-serra'ta. According to Martius, this plant forms a tree thirty or forty feet in height, in Brazil. St. Hilaire speaks of it as a moderate-sized tree, or sometimes a mere branching shrub. "Whatever be its size in its native country, it is quite certain that in our stoves it flowers readily in the autumn, when not more than a foot high; and recommends itself by its handsome tea-like evergreen foliage, even more than by its large, delicate white flowers. Mr. Gardner gathered it at Goyaz." The name *Laplacea* was bestowed on the genus by Humboldt, in compliment to Laplace, a distinguished philosopher and mathematician. *Bot. Mag.,* 4129.

Li'lium Thomsonia'num. The handsome half-hardy Lily, to which this name has been appropriated, is in the possession of the Messrs. Loddiges, of Hackney, "with whom it opened its sweet-scented flowers in a greenhouse, in April, 1844. It is a native of Mussooree, one of the northern provinces of British India. It was first seen by the people employed by Dr. Wallich, who regarded it as a Lily. Professor Royle afterwards referred it to *Frittilaria;* but its floral leaves have not the honey-pore, which is essential to that genus. In fact, it is far too near in structure to the common white Lily to allow of its being distinguished generically. Its delicate rose-coloured flowers offer, however, a very marked feature of distinction." The representation given of this plant in Dr. Royle's Illustrations of Himalayan Botany, has the flowers fully twice the size of those produced on Messrs. Loddiges' specimen. This difference may, perhaps, be reconciled by the latter being grown in a pot, and not perfectly healthy at the time the blossoms expanded. It should be treated on the same plan as the Japan Lilies to realise the extent of its ornamental capabilities. *Bot. Reg.,* 1.

Lucu'lia Pincia'na. Beautiful as the *L. gratissima* undoubtedly is, when producing its clusters of fragrant and delicately soft-looking pink blossoms, yet the present species is said to possess each of these powerfully attractive attributes in a far more exalted degree, and to unite with them yet another claim to popular esteem, in the superior magnitude both of the individual blooms and the aggregate mass of inflorescence. Such a plant must be an acquisition of the highest order to the most fastidious collector of floral gems. Sir W. Hooker describes it as a species "totally distinct from that just mentioned : the only hitherto described one of the genus. In stature and general aspect the two appear to accord ; but the present has broader and shorter leaves, with much more compact (closely placed) nerves, and the limb of the corolla has five pair of prominent tubercles—one pair at the sinus of each lobe." The flowers are disposed in large compound cymes a foot or more in diameter, at the end of the branches. On the upper side these are pure white, changing, however, with exposure, to a cream-colour, tinged with blush ; the outer surface is deep blush, and the tube red. The beauty of these is enhanced by the ample and rich velvety-green foliage which adorns the stem. It was raised in Mr. Pince's nursery, Exeter, from seeds obtained from Nepal, and is grown there in the greenhouse. (It is apparently identical with the plant discovered by Mr. Gibson on the summit of the Khoseea hills, near Chirrapooujee, and introduced to the Chatsworth Collection in 1838. It grows there abundantly on the little table-lands, in a loamy soil mixed with grit-stone sand, amongst other shrubs, such as Thibaudias, Oleas, and Vacciniums, and is so prodigal of its blossoms as to constitute a mass of inflorescence, almost concealing the stem and foliage, and perfuming the whole atmosphere around with its delicious fragrance.) *Bot. Mag.*, 4132.

Onci'dium tri'color "A very beautiful and entirely new species, with foliage resembling that of *Oncidium triquetrum* and *O. pulchellum*, but very different in the flowers, both as to form and colouring, being elegantly varied with white and yellow, and blotched with blood-coloured spots. It was sent to the Royal Gardens of Kew in the autumn of 1843, by the collector, Mr. Purdie, from Jamaica, and blossomed freely attached to a piece of wood, in March and April of the following year." *Bot. Mag.*, 4130.

Si'da grave'olens. Concerning the native country of this species, Sir W. Hooker says it is found in the East Indies and in Jamaica ; " and is probably common to the tropics, both of the Old and New World ; for my young friend, M. Planchon, while arranging the two extensive genera, *Hibiscus* and *Sida*, in my herbarium, was struck with the great number of species that are common to America and Asia, and even to Africa ; more than Botanists, in general, are aware of. The present species, which is undoubtedly the *S. graveolens* of Dr. Roxburgh, the *S. hirta* of Reichenbach (if not of Lamarck), and probably, as Messrs. Wight and Arnott suggest, also the *S. Indica* and *S. Asiatica* of Linnæus, has been always considered to be exclusively a native of the East Indies ; but Mr. Purdie detected it growing truly wild in Jamaica : and seeds which he sent to the Royal Gardens produced plants which have blossomed in the autumn of 1844 in the stove." It is a downy shrub, four or five feet high, with heart-shaped leaves, toothed on the margin, and approaching velvet on both surfaces. The flowers issue singly from beside the foot of the leaves, and their showy portion consists of five wedge-shaped, half erect, half-spreading petals, of a somewhat obscure orange-yellow colour, but rendered more attractive from the presence of a deep, blood-red spot near the base of each, forming a ring of irregular breadth round the pile of stamens. It is the *Abutilon graveolens* of Wight and Arnold. *Bot. Mag.*, 4134.

Stape'lia cactifo'rmis. " One of the most remarkable of a very remarkable genus respecting which it is to be regretted that many species, formerly known to our gardens, are lost, and scarcely any new ones have been received to take their place. Among the latter, however, may be reckoned the curious *S. Gordoni* of Masson (*Scytanthera Gordoni*, Hook. Ic. pl.) which was detected by Mr. Burke on the Orange River, and other places in South Africa, and sent to his employer, the Earl of Derby, at Knowsley, together with the subject of the present plate, lately received among a collection of plants from Little Namaqua-land, from Mr. Zeyher. It flowered in the Royal Botanic Garden of Kew, in August 1844." The plant has more the look of a *Mammillaria*, or some South African *Euphorbia*. The flowers which are nearly sessile, and very small, are collected together near the top of the stem, and in their general form, and the structure of their staminal crown, approach those of the sub-genus *Podanthes*. *Bot. Mag.*, 4127.

Statice macrophylla. " Far superior to the *S. arborea*, or Tree Thrift of the Canaries, in the beauty of its flowers : it is understood to have been introduced from the same islands, by Mr. Smith, of the Hull Botanic Garden. In a large pot, with greenhouse culture, it produces its large panicles of purple and white blossoms in April, and the two succeeding months. Mr.

Forrest, of the Kensington Nursery, exhibited a fine specimen at Chiswick, in April last. The flowers are large for the genus, and handsome, with white petals, and a wide spreading calyx of a rich purple blue colour; with fine yellow radiating lines. The leaves are larger than those of *S. arborea*." *Bot. Mag.*, 4125.

Syri'nga E'modi. According to Dr. Royle, "the Himalayan Lilac is found in Kemaon and in Sirmore, on the Suen range, and on the banks of the Giree and Jumna rivers."—"One thing which is peculiar to this plant, and readily distinguishes it, is the property of producing pale, pustule-like callosities on the branches, which give them a singular appearance. Otherwise it is known from all the Lilacs, except *Josikea*, by its leaves being very pale on the under side; and from that by the acuminate hooked lobes of its corolla, to say nothing of the more lucid, flat and wide foliage. It is a hardy dwarf shrub, flowering in April. The blossoms resemble those of the Privet, and are unpleasantly scented."—"It has been raised at the Horticultural Society's Gardens, from seeds received from Dr. Royle, at different times, under the names of *S. Emodi* and *S. Indica*." *Bot. Reg.*, 6.

Tu'rnera ulmifo'lia. A variety of this plant has been cultivated in gardens, since 1733, as *T. ulmifolia angustifolia*. The present, which is considered the type of the species, is a much finer thing. Plants raised from seeds sent by Mr. Purdie, from Jamaica, flowered last summer in the stoves at the Royal Botanic Gardens of Kew, and at the Syon Gardens. It is well deserving of cultivation, but, being only of short duration, requires to be renewed from seeds. It is a vigorous plant, with spreading, herbaceous stems, and broad, lanceolately-oblong leaves, deeply wrinkled on the surface, and coarsely serrated at the edges. The flowers are solitary, about the size, colour, and with much of the general appearance of *Linum trigynum*. It is common to most parts of South America, and is especially frequent in Brazil. *Bot. Mag.*, 4137.

NEW OR INTERESTING PLANTS RECENTLY FLOWERED IN THE PRINCIPAL SUBURBAN NURSERIES AND GARDENS.

Acanthophi'ppium jave'nse. In one of the orchidaceous houses at the Hackney Nursery, a specimen of this species, received by Messrs. Loddiges, from Batavia, in 1842, was flowering beautifully a few months ago. It is a terrestrial species, like the rest of the genus, and approaches *A. bicolor* in the character of its pseudo-bulbs and foliage. The latter are very large and many-nerved. The inflorescence is clustered together, near the summit of a scape six or seven inches long, issuing from the pseudo-bulbs of the current year, and is not much unlike that of *A. striatum*, with the exception of being altogether considerably larger. The sepals and petals are a very pale buff colour, streaked and tinged with purple, and cohere together, forming with the lip a kind of distended pouch, having a very small aperture, after which they separate, and are somewhat reflexed at the apex. The lip is small, of a singular form, and furnished with several hooked teeth. The ground colour is pale yellow, and is enlivened with numerous unequal-sized blotches of purple along the margins of the lobes. These plants should always be grown in pots filled with a loose soil, full of fibrous matter, and in the operation of potting, the plants should be elevated in the centre, above the rim of the pot; and during the growing season they should be placed in a warm house, always remembering that warmth is as necessary to the roots as it is to stem and foliage.

Aru'ndina de'nsa. This is a most magnificent caulescent orchidaceous plant, with slightly flexuose stems, sometimes growing seven or eight feet high, and forming a complete bush, branching at the bottom, and clothed with long tapering pointed leaves down to the very base. Each shoot is terminated by an upright raceme of flowers, which are considerably larger than those of the species described at page 237 of our last year's Volume, but similar in form and colour, with the exception of the lateral lobes of the lip, which are larger in proportion to the intermediate division. Besides the beauty of the blossoms, they are also interesting in their delicious fragrance; and the dissimilarity to the generality of orchidaceous plants displayed in the habits of the genus, render the different species highly desirable in a collection.

Barke'ria Lindleya'na. This is a most lovely species, equally as showy as the *B. spectabilis*, but more diminutive, and perfectly distinct both in outline and colour. It was introduced from Guatemala in 1842, and is yet comparatively scarce. From a weak plant which displayed a small spike of flowers in Messrs. Loddiges' establishment at Hackney, in the commencement of the present year, it appears to be highly deserving of extension ; and a larger specimen under favourable circumstances must be a magnificent object. Drawings prepared from native specimens represent it as an abundant blooming plant. It has a short stem, from the upper part of which the flower-spike proceeds. The blossoms have an oblong obtuse lip of a purplish cast, with a rich violet spot of considerable breadth near the extremity, which gradually merges into the paler hue. It has much of the lively appearance of *Epidendrum Skinneri*, but the flowers are something larger. It should be cultivated on a log of wood, and suspended from the roof ; or, like Messrs. Loddiges' plant, it may be grown on a block, with one end cut plane to stand on a shelf, and the other cut in a sloping direction, and covered with a slice of fibrous peat, upon which the plant is secured with a fine wire, and its roots protected with a little *Hypnum* moss.

Eri'ca transpa'rens, *var.* bla'nda. The principal point of distinction betwixt this variety and the original species, is in the colour of the flowers. Instead of a purple hue, the corolla is of a bright rosy carmine tint at the bottom of the tube, gradually dying away towards the top, and with the small and scarcely expanding segments tinged with green. They have the same semi-transparency of texture which has suggested the trivial name of the primitive species. It is one of the best of Cape Heaths for a limited collection, and may be had of Messrs. Henderson, in whose nursery a fine plant is now blooming.

OPERATIONS FOR FEBRUARY.

As this month advances, a vast number of operations require to be attended to in the pleasure-ground department ; and it is a good maxim to defer nothing to a later period that can be as well performed before the beginning of March, for by that time the full-tide of spring work will have fairly set in, and what is now neglected will be in danger of being superficially executed, or entirely passed over. All those borders which require pointing over, and the planting and pruning of hardy shrubs, not yet done, may now be proceeded with.

The principal part of the pruning needed by hardy shrubs consists of cutting away dead branches, thinning out spray wood, and shortening back any shoots that have acquired an undue ascendancy over the rest, and the tops of those which, from being insufficiently ripened, have been damaged by frost. All those numerous suckers which are yearly protruded from the roots of such plants as Lilacs, Spiræas, Symphorias, and Loniceras, should be rooted out and cut off as near the main plant as possible ; and this should not be performed in the ordinary slovenly manner with a spade, which injures the roots of the parent, and thereby engenders the production of a still more numerous progeny in the ensuing season, but a strong three-pronged fork should be employed, to loosen them, and then they may be detached with a small pruning-hook. Some of the strongest and best formed of these may be useful where new plantations are forming, or old ones require filling up ; or they may be reserved in the nursery ground for a future occasion. Climbing plants generally require a more severe application of the knife than stiff-growing shrubs, and for many kinds close spur-pruning will be most appropriate. Roses may now be pruned, with the exception of the Tea, Chinas, and some of the more tender kinds, which will be better deferred till the end of March or beginning of April, and in cold, bleak districts, to a still later period. In all pruning, special observance should be paid to neatness. Always cut near a bud, for whatever remains beyond is certain to die, and has ever an unsightly appearance. Long, sloping and ragged cuts, too, should be as carefully avoided. Whatever pruning or planting is required amongst shrubs, should always be performed before the soil is stirred ; and for the latter work, a light fork is preferable to a spade.

Throughout the present month a principal aim of the culturist should be directed towards repressing the daily increasing signs of renewed activity, which are exhibited not only by plants in the greenhouses and frames, but also in mild weather by those in the open ground. The difficulty of accomplishing this object increases as the season advances. And here we may give a word of caution on the necessity of uniformity in the treatment of any particular plant at this season. Unless the endeavours of the culturist to retain torpidity are constantly persevered in, till the proper time for using stimulating means, not only will his after efforts be tenfold less successful, but it is more than probable they will be attended with a positive injury to the plants. Throughout the whole period in which there is any benefit accruing from the retention of dormancy, it is indispensable to employ every available method of prolonging it, with unvarying constancy; for any relax in the rigour of his measures will unfailingly curtail the length of time in which a quiescent state can be safely and usefully maintained.

Many objections might be urged against attempts to produce early growths. They are less vigorous from the imperfect means of acquiring and assimilating nutriment; and the debility which arises from this, frequently entails similar consequences on the growth of succeeding months; the plants are more susceptible of injury from the occasional returns of severe weather; and additional care and expenditure is required to maintain a suitable atmosphere for them. As a general practice, then, it is important to prolong the season of rest for at least a month yet.

In the accomplishment of this object, abstaining from fire-heat as far as possible, and preserving the requisite temperature by means of some external covering to the glass, is one of the most prominent instruments. The continual *creation* of heat by fires has always a greater tendency to produce excitement, than the mere *preservation* of it by preventing radiation; and this is more perceptible just about the commencement of growth than at any other season, though it is always injurious. The exclusion of frost is all that is required in greenhouses and frames, and whenever this point is far exceeded an injury is inflicted. Where a warmth of 35° can be commanded, no artificial means of producing a higher temperature should be brought into operation. Perhaps the greatest injury which is experienced from fire-heat, arises through its excess during night; and this is precisely the time when it is most prevalent, for when no exterior protections are employed it is almost unavoidable, as a precaution against a sudden frost.

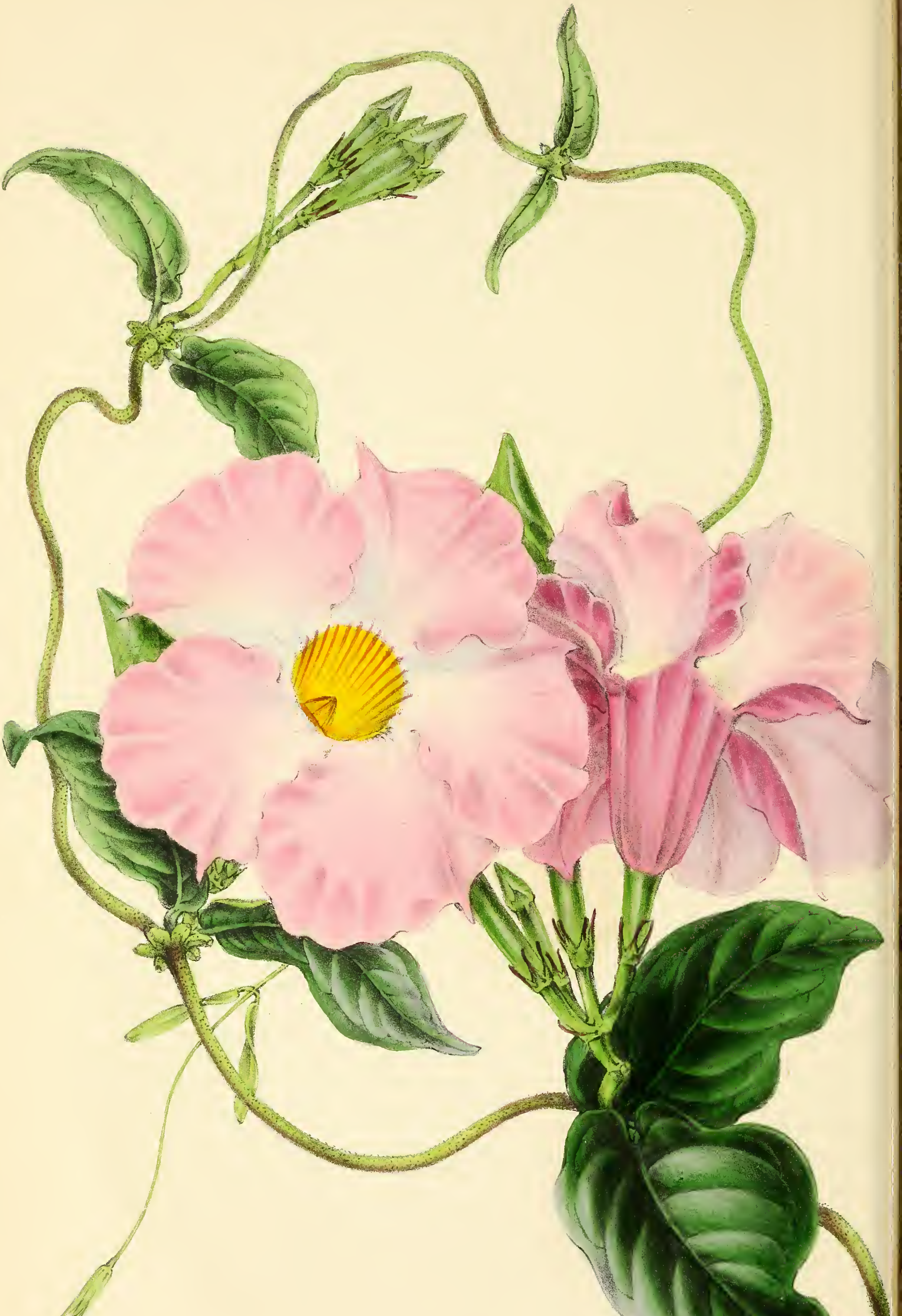
Another beneficial effect of external coverings, is the privilege it affords of exposing the plants more fully to light by placing them within a shorter distance of the glass than it is safe to do in the absence of such a protection. And this is another thing which is favourable to the continuation of a state of inaction, and ought to be obtained as fully as possible.

On every suitable occasion air must be given freely in the greenhouse, not only to keep down the temperature, but also to dry up any damp that may arise from watering, &c. Ventilation, however, must be avoided in foggy weather, and in all cases when it would admit a sharp frosty wind or rough blast to strike upon the plants.

It is still more momentous to retain a state of perfect torpor in tender plants in the open ground, than in those supplied with the protection of glass. If mild weather occur, many, such as Tree Pæonies, delicate Roses, &c., will be very apt to show an inclination to grow; and especially if the removal of their protections is not diligently resorted to at every chance. By keeping them constantly immured in darkness, with a close, confined, and unavoidably humid atmosphere, they are rendered infinitely more liable to injury from succeeding cold, and the disposition to precocious growth is also increased. The best material for protecting the exposed portion of such plants is spruce branches, which, with a little dried fern about the roots, constitute a sufficient safeguard from frost, and at the same time admit a play of air around them. In sunny weather considerable advantage is conferred by leaving the plants exposed on the northern side, and placing the spruce branches so as to intercept the solar rays.

Stove and Orchidaceous plants will generally require an increased temperature towards the latter part of the month, as it will be impossible longer to restrain the growing current with safety. The major part may now be potted if needful, and those in baskets and on blocks should be carefully examined.

The forcing-pit must still be supplied with fresh plants as the former are taken away; and a more extensive variety of suitable species may now be easily obtained. Many greenhouse plants may be slightly forced, and a considerable number of Cape Iridaceæ, Gardenias, Hydrangeas and Roses, may be selected. Before forced plants are removed to the greenhouse or conservatory, they should always be permitted to stand for a few days in an intermediate place, or the sudden transition from a close, warm atmosphere, to one so much colder, will probably destroy their beauty. Where there is not a separate show greenhouse, the sashes must not be opened so freely, and it will be well to place all the most tender kinds at the warmest end.



S. Holden. del & Lith.

Dipladenia crassinoda.

DIPLADENIA CRASSINÒDA.

(Thick-jointed Dipladenia.)

Class.
PENTANDRIA.

Order.
MONOGYNIA

Natural Order.
APOCYNÂCEÆ.

Generic Character.—*Calyx* five-cleft, with one or two little glands on the interior on each side at the base of the segments; glands sometimes ligulate, sometimes scaly. *Corolla* salver-shaped, or with the tube cylindrical at the base, and funnel-shaped above, hispid about the origin of the stamens; throat exappendiculate; lobes twisted to the left in æstivation. *Anthers* nearly sessile, inserted in the upper part of the tube, at the middle or below the middle, where the tube widens, sagittate, adhering to the middle of the stigma, acuminate at the apex, or ending in an acute membrane. *Glands of the nectary* two, alternating with the ovaries, obtuse, single by reason of two being for the most part joined evenly together. *Ovaries* two, sometimes longer than the nectary. *Style* one. *Stigma* globular, surrounded beneath with a reflexed, umbrella-shaped membrane. *Follicles* and *seeds* as in *Echites*.

Specific Character.—*Plant* a climbing evergreen shrub. *Stem* branching and nodose. *Leaves* lanceolate, acute, or sub-acuminate, coriaceous, and shining on both sides. *Racemes* axillary and compressed, usually six-flowering, elongating. *Calyx* lobes lanceolate, acuminate, with the cylindrical part of the tube a little shorter, and the pedicels two or three times shorter. *Corolla* tube campanulate below the middle, lobes obovately orbicular.

Synonymes.—*Echites crassinoda*, *E. carassa*.

The splendour displayed in the rich and delicate hues which beautify the blossoms of this plant, must induce every one to regard it amongst the most magnificent things disclosed during the season of 1844. Specimens have been in the possession of several of the London nurserymen for two or three years, but none have yet produced flowers, with the solitary exception of a specimen procured from Mr. Low, of Clapton, which yielded to the attentive and skilful treatment practised in the excellent collection of R. G. Loraine, Esq., of Wallington Lodge, to whom we are indebted for our figure, and whose courtesy and attention, on several occasions, we avail ourselves of the opportunity here afforded to acknowledge.

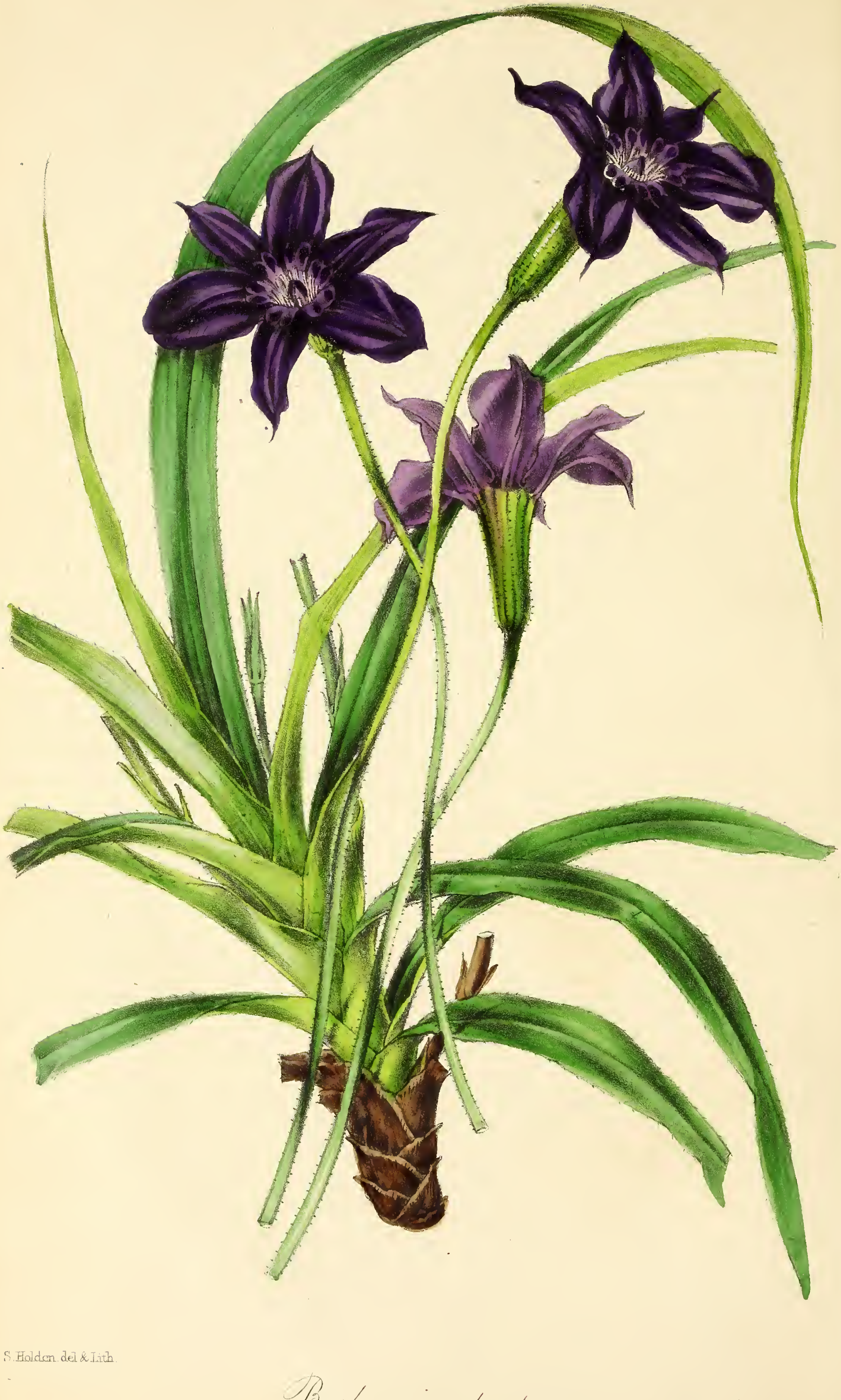
This species is one of twenty which have been separated by M. Alphonse De Candolle from the vast number congregated under the name of *Echites*, and formed into a new genus, to which he has assigned the name *Dipladenia*, on account of each bearing a couple of glands at the base of the seed-vessel. Amongst these species we find the *E. atropurpurea* and *E. splendens*, (figured in previous volumes of this Magazine,) the latter of which bears a remarkable resemblance, in the prevailing hue and character of its blossoms, to the present species; but they are much larger, paler coloured, and destitute of the fine orange throat, which adds so much to the beauty of *D. crassinoda*.

The growth of our subject is less exuberant than that of *D. splendens*, and it also varies considerably in the foliage, which is smaller, perfectly smooth, of a deep glossy green, and acute, instead of heart-shaped, at the base. When the flowers first open, they are almost devoid of colour, and the fine roseate tint is gradually acquired and daily deepening, till they fall off, which is usually in about nine or ten days. On Mr. Loraine's plant the same raceme had never more than one flower expanded at the same time, and as each decayed, a successor unfolded.

From Sir William Hooker's "Journal of Botany," it appears that it was first discovered by Mr. Gardner in the more elevated parts of the Corcovado mountains, in the neighbourhood of Rio Janeiro. We understand the specimens in this country, obtained from the Continent, were also originally procured in South Brazil, by a Danish botanist.

It requires a stove-heat and a moist atmosphere to grow it well; and though a moderate sized pot only is necessary, it should be planted in a well-enriched mould, of which loam and leaf-soil form the principal constituents. Probably an occasional watering with much-diluted liquid manure might be given with good effect. Mr. Loraine attributes his success, and evidently with good reason, to having furnished the plant with a moderate warmth at the roots as well as to the stem and branches. Want of success in flowering many plants may often be traced to inattention to this point.

Cuttings take root with the greatest readiness, under ordinary management.



S. Holden. del & Lith.

Barbacenia purpurea

BARBACENIA PURPÙREA.

(Purple-flowered Barbacenia.)

Class.
HEXANDRIA.

Order.
MONOGYNIA.

Natural Order.
BROMELIÀCEÆ.

Generic Character.—*Perianth* adnate to the ovary, funnel-shaped, six-cleft. *Filaments* two-cleft. *Anthers* affixed by the base to the back of the filaments. *Capsule* three-celled. *Seeds* numerous.

Specific Character.—*Stems* scarcely any, dichotomous, with a few striated brownish scales: *Leaves* linear, somewhat spirally twisted, carinated, striated, rigid, with distinct minute marginal teeth pointing upwards, sheathing at the base. *Scape* much longer than the leaves, obtusely trigonal, scabrous upwards, single-flowered. *Flowers* erect, purple. *Petals* six, united into a tube at the base, lanceolate; three outer narrower, reflexed, and much acuminated, obscurely striated; three inner broader, waved, more erect, acute, veined. *Filaments* linear and petaloid, purple, opposite the petals. *Anthers* two-celled. *Style* oblong, as high as the anthers, with three white glands below the point.

This beautiful little plant was the first of the genus known in this country, and is a worthy companion for the orange-red flowered *B. squamata*, introduced recently by Messrs. Veitch, of Exeter, and figured in our volume for 1844.

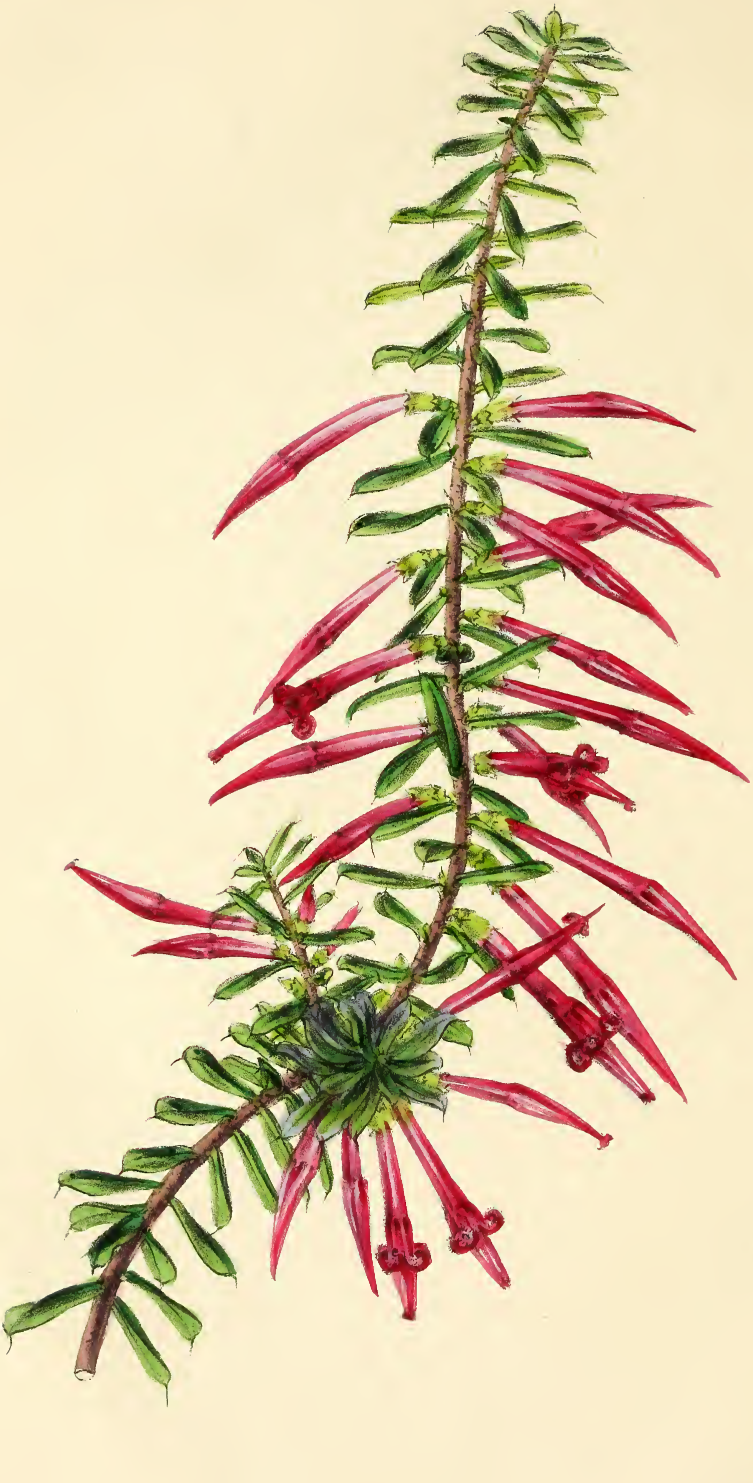
The manner in which it was first obtained in England is precisely similar to that recorded last month of the *Achimenes hirsuta*, and should act as a caution to the importers of foreign plants to be careful in examining the materials amongst which their plants are packed. The seeds were discovered by the Hon. and Rev. W. Herbert, of Spofforth, amongst a quantity of Brazilian Moss; and, being sown, produced the pretty species depicted on the opposite page. Some of the young plants thus raised being sent to the collection of Earl Fitzwilliam, at Wentworth House, Yorkshire, were flowered by his Lordship's able gardener, Mr. Cooper, and forwarded to Sir W. J. Hooker, by whom the specific name was accorded, and a figure given in the *Botanical Magazine;* and from the accompanying description we have abstracted the specific characters given above.

It is a product of Brazil; and Mr. Gardner, in his recent exploration of that country, met with it near the foot of the mountains about two miles south of the town of Rio Janeiro. It there grows abundantly in places where a little vegetable mould has accumulated, amongst which it vegetates and blooms with the utmost luxuriance.

All the leaves spring from near the same point, forming a tuft round the base, which scarcely elongates into a stem. They are of a very rigid nature, and differ from those of *B. squamata* in having larger and more distant spinous serratures at their margins. The plant is also distinguished by the flower-stalk being considerably longer than the leaves, and by the colour of the flowers. Several of the species described by Martius in the *Plantæ Brazilienses* are much larger plants than either of these, and some are apparently well worth the attention of collectors of showy species.

The situation pointed out by Mr. Gardner as the natural habitat of this plant, sufficiently indicates the kind of treatment most likely to prove congenial. And as far as our experience enables us to judge, this is in strict accordance with the practice of successful cultivators. A warm, moist atmosphere, and a proportionate and uniform degree of heat about the roots in the growing season, together with a porous soil, partly composed of well-rotted leaves, through which water can easily pass and any excess drain away, seem to be the essential elements in the maintenance of a high state of cultural perfection.

It is increased by division of the roots.



S. Holden, del & Lith.

Styphelia tubiflora

STYPHÈLIA TUBIFLÒRA.

(Tube-flowered Styphelia.)

Class.
PENTANDRIA.

Order.
MONOGYNIA.

Natural Order.
EPACRIDĀCEÆ.

Generic Character. — *Calyx* girded by four or more bracteas. *Corolla* elongated, tubular; tube furnished with five fascicles of villi near the base inside; segments of the limb revolute, bearded. *Filaments* exserted. *Ovarium* five-celled. *Drupe* nearly dry, containing a solid bony putamen.—*Don's Gardening and Botany.*

Specific Character. — *Plant* an evergreen shrub. *Leaves* linear, obovate, mucronate, rather scabrous above, with revolute edges. *Peduncles* single-flowered, axillary. *Flowers* drooping, scarlet.

Long as this elegant plant has been known in British collections, it is rarely seen so luxuriant and vigorous as the specimen from which we were courteously permitted to prepare the accompanying drawing, twelve months since, at Ealing Park, the seat of Mrs. Lawrence.

As with the Heath tribe some years ago, it appears to be the misfortune of this plant to suffer under an impression of its intractability to ordinary management, and instead of redoubled efforts to surmount the seeming difficulty, it is usually thrust into a corner as a plant unworthy of attention; and the real wonder is, not that it fails to grow strong and healthy, but rather that it continues to live. With a view to dispel this erroneous idea, and to show that it is really a very beautiful thing, and by no means so stubborn to manage as has been imagined, we have not allowed the mere nominal want of novelty to deter us from bringing it forward, satisfied that an object of unequivocal beauty must be as acceptable as that which bears its only recommendation in the short-lived merit of being a recent acquisition.

In addition to the intrinsic ornament of the species, it possesses another important claim to a favourable reception in its season of flowering; the blossoms being disclosed during the gloomy months of winter and early spring, when the majority of plants are in a state of torpor, and present a less inviting exterior. The general aspect of the plant is not strikingly dissimilar from many species of the kindred genus *Epacris*. The stems are furnished with small leaves, which are sometimes linear-obovate, and sometimes somewhat heart-shaped at base. The flowers are borne all along the shoots of the previous season, and spring from the bosom of the leaves. They are remarkable for their handsome pendulous tube and the delicacy of its colouring, and also for the rolled back segments of the limb being furnished with a fringe of numerous crimson hairs.

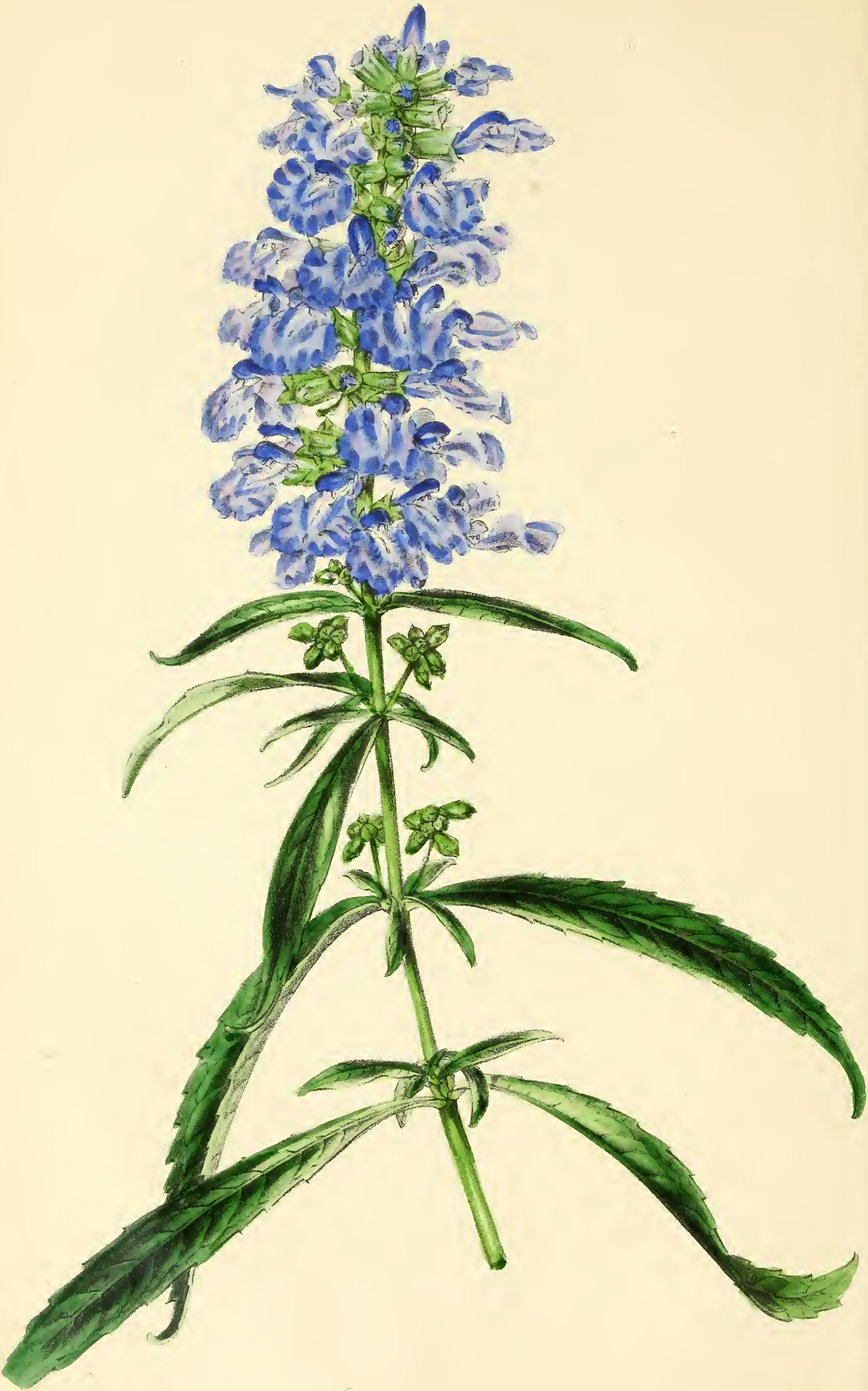
The species is found growing plentifully about Port Jackson, in New South Wales, where its flowers are disclosed at a much later period than with us—usually between May and August. It was originally brought into cultivation in 1802.

The tenuity of its thread-like roots, combined with the desiccated appearance of the hard-wooded brittle stems, unquestionably render it more liable to receive harm from a saturated soil; for a plant incapable of absorbing and assimilating or exhaling a large amount of aqueous matter, is proportionately exposed to suffer from the lack of effective drainage. To enable water to pass off, an open soil should be selected, through which it may percolate freely, and whilst it supplies the needful quantity of nourishment to the roots, may not remain to stagnate around them. Two-thirds heath-mould, with a small addition of thoroughly decayed leaf-soil, and the remainder loam and sand, constitute an excellent compost.

Yearly pruning, and a provision for maintaining the ordinary atmospherical conditions essential for the encouragement of vigorous growth during spring, with the timely adoption of those alterations which have been so often reiterated in our pages as indispensable for the procurance of fully matured wood before winter, and to prevent a premature inducement to grow, are points to which the culturist must give undeviating attention, if his aim be to produce superior specimens.

The usual mode of increasing the species of *Epacris*, by cuttings planted in sand in spring or autumn, will be equally successful and easy with those of the present genus.

The family name *Styphelia* is obtained from the Greek *styphelos*, harsh, or rough, and applies to the harsh or rigid constitution of the stem and branches.



S. Holden, del & Lith

Salvia azurea

SÁLVIA AZÙREA.

(Azure-blue Flowering Sage.)

Class.
DIANDRIA.

Order.
MONOGYNIA.

Natural Order.
LABIATÆ.

Generic Character. — *Calyx* ovate, tubular, or campanulate, bilabiate; upper lip entire, or tridentate; lower one bifid; throat naked inside. *Corolla* with an inclosed or exserted tube, which is equal, ventricose or widened, sometimes furnished with a ring of hairs inside, sometimes naked, or furnished with two teeth or processes on the lower side at the base; limb bilabiate; upper lip erect, rarely spreading, straight or falcate, entire or emarginate; lower lip spreading, shorter or longer, with the lateral lobes oblong or roundish, spreading, reflexed, or twisted erectly, the middle lobe usually the broadest, entire or emarginate. *Rudiments* of superior stamens wanting, or small and club-shaped; lower two always fertile, inserted near the throat of the tube; filaments short, horizontal, rarely erect, articulated with the anther at top, and usually drawn out beneath the articulation, rarely almost continuous. *Anthers* dimidiate; connective elongated, linear, articulated transversely with the filament, ascending under the upper lip of the corolla, and bearing at the top a linear, adnate, or versatile fertile cell, and deflexed or erect behind, and sometimes bearing another smaller cell, which is either fertile or difformed, and empty; free, but usually combined together, or connate in various ways. *Disk of ovarium* glanduliferous in front. *Style* ascending, bifid at top; lobes sometimes subulate, equal, or the superior one the longest, and sometimes the lower one or both are rounded, dilated, and flattened. *Stigmas* for the most part minute, terminal, or in the larger part running along the lobes of the style. *Achenia* ovoid-triquetrous, dry, glabrous, usually very smooth. —*Don's Gard. and Botany.*

Specific Character.—*Plant* a tall perennial. *Stem* herbaceous, erect, glabrous. *Leaves* petiolate, long, oblong-lanceolate, or linear, bluntish, narrowed a long way at the base, entire or few-toothed, green on both surfaces, and glabrous; floral leaves lanceolate and linear, deciduous. *Racemes* simple, elongated. *Whorls* distant, subsecund, generally six-flowered. *Calyxes* nearly sessile, tubular, striated, nearly glabrous, with the upper lip entire, and the teeth of the lower lip broad, acutish. *Corolla* more than twice as long as the calyx, pubescent outside; tube ventricose, and half as long again as the calyx. *Style* bifariously bearded.

Synonyme.—*S. elata; S. acuminata; S. longifolia; S. mexicana;* and S. *angustifolia* of some. *S. acuminatissima.*

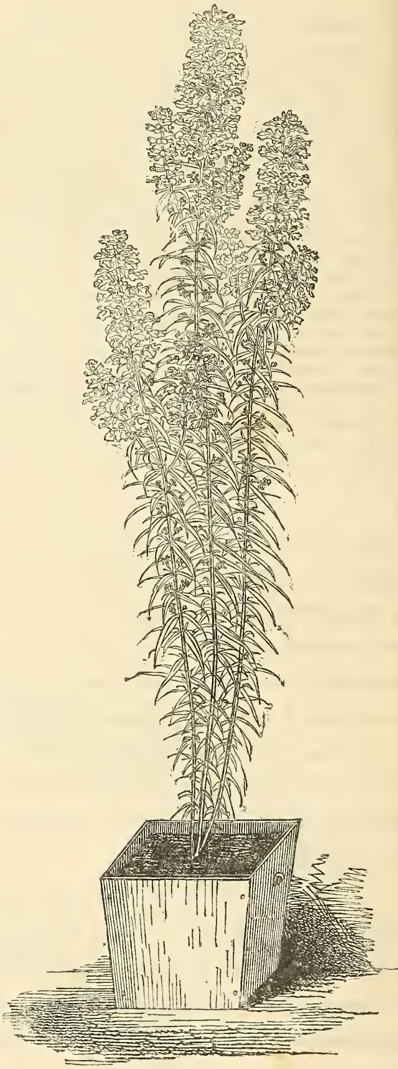
When we consider the vast extent of this genus, nearly three hundred species being described in botanical works, it is not surprising that we occasionally find the same kind described by different writers under various names, and sometimes the same appellation applied to two or more different species. Thus, the present plant has received the title of *S. mexicana*—(Walter, in Fl. Car.)—a name previously occupied by another blue-flowering, but very distinct species; and in the North American Flora of Michaux it is called *S. angustifolia*, a name also appropriated to another and a well-known species. As our gardens possess both the kinds which are commonly received by these names, we have judged it proper to give the above explanation, to prevent the occurrence of any mistake through confounding the present with them.

S. azurea is by no means a new thing to the collections of this country, having been imported as long ago as the commencement of the present century. We are not aware whether any of the importations of that period still exist; but believe it had been lost, or nearly so, till lately re-introduced from a continental collection, by Messrs. Knight and Perry, of Chelsea, in whose nursery we had the annexed representation taken last November.

It has been met with in its wild state generally throughout most of the southern parts of North America. It grows plentifully in Georgia, Carolina, Eastern

Florida, Jacksonville, Arkansas, and several other states; and in the more northern parts its great beauty has secured it a rank amongst cultivated flowers.

In habit it is much superior to *S. angustifolia*, which it resembles in the form of its blossoms, and in having long narrow foliage. It is an herbaceous species, varying in height from three to five feet, and in its native localities frequently attaining six or seven feet. The foliage, however, is more ample, and the stems are not weak and straggling like those of its ally, but strong enough to preserve a perfectly erect habit. And, though the flowers separately are small, they are produced densely in lengthened clusters, and are valuable for the exquisite delicacy of their celestial hue, and the vast quantity of inflorescence usually expanded at the same time. It appears to be sufficiently hardy to exist through the winter in the open air, at least when planted in soil that is not too adhesive, or otherwise liable to an accumulation of wet.



But, notwithstanding the large proportions it acquires when grown in borders in the open air under encouraging circumstances, it may easily be rendered more dwarf, and hence made available for the beds of the flower-garden, by continuing to layer the shoots as they exceed the prescribed height, and thereby producing a lateral expansion of the sap, in the form of additional flowering branches; or it may also be cultivated in a pot, and flowered when not beyond eighteen inches or two feet high, when it constitutes a useful acquisition to the greenhouse, not only for the quantity and beauty of its blossoms, but also for its capacity for late-blooming.

It admits of an extensive multiplication by cuttings and division of the roots, and probably also by seeds.

The woodcut represents the habit of the plant, growing in one of Mr. Beck's slate-boxes.

HEAT AND ITS APPLICATION.

To resume the subject of heat as applied to forcing-houses, it must be again impressed, that any combustible body, be the material what it may, can only cause the diffusion of heat in a volume of air, to an extent proportionate to the chemical energy exerted between the elements of water and carbon, when they combine by mutual attraction; but that the heat so induced may, nevertheless, be squandered or economised by the machinery applied.

There is perhaps nothing more wonderful in nature than the extrication of light and heat. We daily, hourly, throughout our lives, become witnesses of phenomena perfectly miraculous; and pass them by as mere matters of course;—yet in the ignition of a common lucifer-match there is a power revealed equally mysterious as that which causes a flash of lightning to dart from the East to the West.

But we must not, in a notice purely practical, attempt to enter upon an inquiry concerning causes: it is well, however, when a mind accustomed to scan the mysteries of nature with stolid indifference, becomes aroused in a degree to some appreciation of their beauty and truth.

In our last, an attempt was made to describe a simple machinery by which a portion of coke, kept at a state of moderate red-heat in a cylindrical vessel, was enabled to communicate its heating power to a body of water, so as to effect all the objects of forcing hitherto attempted by the means of fermenting beds of dung, leaves, tan; and by fire-flues, whether employed separately, or in conjunction; but till within the few past weeks we were not aware of the great extent to which the principle might be applied;—and now, in order to direct the amateur or professed gardener, who contemplates an erection, either as a propagation-house, flower-stove, or pinery, wherein any degree of heat from 55° to 75° can be at absolute command, we will describe a water-flue or channel, which is actually at work, and can at any time be efficiently regulated.

The objections to the coke furnace, before urged, remain in their full force; but as to the water-channels now alluded to, they appear to be almost perfect. For example:—suppose a hot-house twenty-five feet long from east to west, and nine or ten feet wide from back to front; the boiler, capable to contain five gallons, may be erected at any convenient part outside of the back wall, so that its flow and return pipes shall pass through that wall, where they may communicate with the water-flues or channels; at this place they are on a perfect level, the fall being provided for by the rapid descent of the return-pipe. A platform of earth is then raised all round the house, secured by brick facing-walls; and herein some care is required to obtain a correct and solid foundation, at about two feet above the ground level.

Upon this platform courses of two bricks are laid flat, end to end, and securely bedded in mortar, at distances to allow of a flooring to be laid with the best twelve-inch paving tiles, jointed with Parker's cement. This floor will form the base of the water-course, and upon it three ranks of nine-inch regular paving tiles are placed on their edges, jointed and rendered perfectly water-tight with the same cement. These tiles are so arranged as to form a double channel, each eight and a half inches wide, the two outer ranks resting over the edges of the foundation flooring, and the centre rank dividing the channel into two equal courses, one communicating with the entering flow-pipe, the other with that of the exit. The upper surface is simply covered with slates, two feet long, which extend across the whole flue; and these are also bedded with cement, except at certain intervals, equally divided according to the dimensions of the house; and in each of these one slate is made to slide in a zinc frame, correctly grooved.

The utmost accuracy of manipulation, with materials of first-rate quality, are the essential requisites; and they who can employ their own workmen, superintending, and even assisting at the work themselves, are most likely to derive satisfaction from the machinery.

The chimney rises from the fire, but at several inches above it, from a cylinder of brickwork built upon, and raised a few courses above the upper rim of the boiler; it passes through and along the back-wall at a rising slope to the most convenient corner of the house, where it is made to enter a shaft, or wide metal pipe, furnished with a damper, on the outside of the house. Six inches in the clear is space sufficient for the flue; but in order to economise every active particle of the heat, it ought to run in that direction in which its radiating power will have the greatest scope.

A well-acting, water-tight, pair of channels, such as we have described, filled, and kept full, *to within one inch, or one inch and a half* of the covering slates, cannot contain less than from two hundred and fifty to three hundred gallons, and this volume of water is made without difficulty very hot, by the interflow of the five gallons contained in the boiler. This great effect, however, depends upon the rapid combustion, *by day*, of small quantities of coke not more than sufficient to occupy half the depth of the fire-cylinder. Attention and frequent renewals are necessary; and with these, the temperature may be regulated according to that of the open air, and the absence or power of the sun. As every cubic foot contains 1728 cubic inches, and every gallon occupies about 277¼ inches; as also the water-channels just described, being 9 inches deep, and 8½ wide, both in the clear; it follows, that every foot, internal measure, is capable of containing 918 cubic inches, or three gallons and one-third of water, very nearly. It therefore must be evident that a double course of such channels, round any house, must radiate a very great volume of heat, provided the furnace be capable of raising the temperature of the fluid to nearly scalding heat, *i.e.* about 130° to 140° of Fahrenheit.

The *vapour* excited by a new range of flues, while green and damp, is very great; but we have discovered that this abates after a time, when the tiles are of first-rate quality, and the adaptation by cement perfectly correct: this is a circumstance of great moment, as a predominance of moisture, though at command, is readily avoided.

To persons with whom economy of fuel is a first consideration, some modification of the furnace becomes essential; for, although by filling the cylinder with coke, curtailing the draught at the ash-pit opening, and nearly closing the chimney-damper, the high temperature then existing can be sufficiently supported by radiating surfaces so extensive during the longest winter nights; yet great assiduity is required, throughout the day, to raise a full temperature by the rapid combustion of the coke. We therefore urge the necessity of a new modification of furnace, giving greater capacity upon the principle of the oven, wherein fuel of more durable and less costly materials can be constantly burnt, and always kept alight, without that unremitting attention which the small cylinder coke-boilers require.

Upon accurately investigating a house, 25 feet by 9, and of proportionate average height, we found a temperature of 69°—70°, with brisk wind at N.N.W., and 3° of frost at 9 P. M. The upper surface of the slates measured 86 square feet, and the internal contents of the two channels were estimated at very nearly 286 gallons. The heat of the water, at its entrance into the channel, was 129°, that at the termination of the exit-channel, close to the descending return-pipe, 125°; while at 20 feet distance, and not remote from the centre of the course, the index marked about 127°; so regular and equable were the communication and distribution of heat evolved from about a peck of ignited coke.

We submit these facts as a standard of calculation; observing, that if 280 gallons of water can thus be heated to 130°, a proportionate increase of combustible matter would diffuse heat in proportion to a house of much greater dimensions.

The agency of heat is peculiarly influential, but it requires the presence of pure *solar* light to render it a safe application to growing plants: in that radiance there is a combination of principles which, though not clearly comprehensible, manifestly includes electro-magnetism, and heat. The latter principle has been usually restricted by philosophers to what they term the prismatic red ray, while pure magnetism, the principle of cold, is referred to the blue and violet rays, seen at the opposite side of the spectrum.

Electricity,—the great agent of all attractions, and that ethereal essence which retains the elemental material substances in their natural state of union,—appears to demand the presence of all the rays, united in the form of white light: hence, the sunbeam becomes the vitaliser of vegetative nature; hence, the flow of the sap, the peculiarities of movement during day and night, the transpiration and imbibition through the "stomates" of the foliage, and all the various and variable changes of tint in leaves and flowers.

The great Thomas Andrew Knight pointed out, many years ago, not only the uselessness, but the danger, of keeping up strong, moist temperature during the night; and modern practice appears, at length, to conform to his precepts: thus, in the "Calendar of Operations" (*Gardeners' Chronicle*), we find weekly, cautionary hints to that effect—as, for instance, in the floral department:—"Let the temperature by night be kept as near as possible at 60°, increasing it by day 15° or 20°;" and in those of the pines and vinery,—"day-heat, 75°, allowing the glass to reach 85° in sunshine, and to fall to 65° at night." We err greatly in practice and opinion, when we insist upon the necessity of retaining high excitement during darkness; for, in the first place, the physical condition of a plant is not the same as when it is under the attractive and elaborating stimuli of the rays, nor does *cold* affect a plant very materially during the night. On the 26th Jan. 1842, during a violent gale of wind, a chimney-shaft was blown over, and many bricks broke through two large lights of a hothouse, then under forcing; fifty squares were destroyed, besides wood-work: the fire would not act: cold came on after the storm ceased, and yet, a reduction of heat to 50 , or less, did not cause the slightest injury to the tender shoots of a vine!

Still, it is not advisable to encourage great transitions, although it is yet more erroneous to maintain 70° or 75° at a time when weak and useless elongation of the cellular, moist parts of a plant, must be the only natural result.

SLATE FOR HORTICULTURAL PURPOSES.

In the management of a garden every thing that tends to produce a greater degree of neatness than has been previously displayed, or economises expenditure, is sure to be hailed as an acquisition equally important with the discovery of an improved method of treating any individual species, or tribe of plants. For as the chief end of all gardening is to bring together, and dispose tastefully, an assemblage of beautiful objects, it is essential that all the minor accompaniments be such as will most harmonise with, and enhance the character of the more prominent features; and the desirability of effecting this at the least possible expense is a consideration that, we may confidently assume, none will be disposed to underrate.

It should be borne in mind, however, that it is not that which may be had, or can be done, at the lowest primary cost, which always ultimately proves the least expensive; but that which unites present efficacy, and the capability of continuing it, at the least outlay. The material, to the consideration of which the present paper is devoted, in some of the different forms in which it has been applied to horticultural purposes, we are willing to believe, possesses a capacity for furthering both these points.

The application of slate, by Mr. Beck, of Isleworth, to the manufacture of boxes for the reception and growth of conservatory plants of large size, which have hitherto been cultivated almost exclusively in *wooden* boxes, is undoubtedly deserving of the first place in treating upon the material; especially as these have been successfully used by the gentleman just named, and have already undergone considerable improvement, as the defects of those first made became obvious, and increased practice in their construction revealed means of rendering them lighter and neater. In their present state they combine most of the advantages which have been obtained in wood, without some of the disadvantages of that substance.

These boxes are square, and may be taken to pieces for the convenience of carriage, or to lay by when not in use. The pieces of which the sides consist are jointed into each other, and secured by a screw running into an iron nut imbedded in the slate. The bottom is let into a groove, at about an inch, or an inch and a half from the base of the sides, according to the size, and is perforated by one, or several holes, to permit water to pass through. The bottom being thus raised from the ground is obviously favourable to drainage, and a means of deterring snails and worms from entering through the holes; and these advantages are increased, and a circulation of air at the roots of the plant promoted, by the box standing on four small castors screwed to the bottom, which also facilitate their removal from place to place. The sides are likewise provided with small inverted iron hooks, so that with the aid of two shafts, cut of a convenient size and form (like the shafts of a common hand-barrow), and with an iron loop in the middle to fix them to the hooks, they may be shifted to a distance with the utmost ease.

Perhaps the greatest recommendation of this material for boxes is its durability. Those who have many large trees in wooden boxes well know that the continued exposure of the inner surface to the action of water and damp soil, is progressively effecting a decay, and a speedy one, unless some very durable, and, consequently, more expensive wood is employed, which will bring the cost of the respective articles much on a par. When painted they are fully as neat as wooden ones.

An objection may probably here be urged by some, who, knowing the unsuitableness of the slate in their own vicinity, or that with which they may chance to be acquainted, doubt the applicability of such a substance to the manufacture of plant-boxes, or its durableness when so applied. The texture and quality of slate, however, varies exceedingly, and that found in many districts is undoubtedly useless for boxes, inasmuch as it is easily broken and cannot be worked to the degree of neatness required for a green-house or conservatory. That employed by Mr. Beck is obtained from Bangor, in Wales, and possesses a hardness and cohesive strength that admits of being divested of all clumsiness without endangering it.

Although we have only spoken of slate-boxes as serviceable for large plants, such as Orange-trees, Rhododendrons, Palms, &c., yet they *may* also be employed for any stove or greenhouse plant of a smaller size, not even excepting Heaths. The roots of Orchidaceæ, moreover, cling to slate with as much tenacity as to the most porous brick. Mr. Beck has employed them very largely in the cultivation of Roses and Gesneraceous plants, with what success must be yet fresh in the memory of all who had the opportunity of viewing the very superior specimens exhibited by him at the great metropolitan exhibitions, and is amply testified by the prizes they bore away. It is at least convincing that it is possible to grow plants well in slate-boxes. We do not, however, anticipate that they will ever become general for small plants; a few, by way of variety, may be used for windows or balconies, or dispersed amongst others in the plant-houses.

Besides the manufacture of boxes, slate is adapted for many other garden purposes, such as the construction of cisterns for supplying plant-houses with water, and for the culture of stove and greenhouse aquatics; long boxes for mignonette, or other small fragrant or showy plants, for the sill of a window; for the stages and shelves of a greenhouse or stove; as a covering for hot water-tanks, or air-chambers; for the sides of low pits, or rather fixed frames, intended for raising seeds, young plants, and propagational purposes generally, or for preserving summer border plants through the winter; for ventilators in the back and front of brick-pits or small houses; and Mr. Beck has also substituted this material for wood in his brick pits, as a bed for the lights to run in. For the two last purposes slate has an advantage over wood, as it neither swells nor contracts so much with the fluctuations of temperature, and it is also free from warping, all which are often productive of considerable inconvenience and annoyance to the culturist. The hard quality of slate renders it a desirable substance for pit rafters on another account:—the grooves at each side necessary for preventing water entering the pit are less liable to be broken, or to become defective, as sometimes happens when wood is employed, from warping.

Slabs of slate may be serviceable in a variety of other ways in a garden;—for edgings (especially in a kitchen-garden); for standing plants on during the summer season, and as a flooring for frames in winter. For these latter purposes it is of great benefit in keeping out slugs and worms. Moisture, too, is well known to be the greatest bane of plants in pits and frames during winter; and ashes, which are the most common flooring, are a continual source of damp. Slate, on the contrary, keeps all perfectly dry, as it allows any water that may be given to drain away. It might be an improvement to have the bottom elevated about a foot from the ground, resting the slate on brick-work. By using a little cement round the edges of the frame, which should fit close upon the slate, worms, snails, and mice, will be effectually kept out. Some such flooring as this confers a further benefit, by preserving wooden frames, which are too often thoughtlessly placed on the ground in immediate contact with a damp earth, and are consequently completely rotten in less than half the period they ought to last. Slate slabs may also be used for drains and conduits.

In the reserve ground slabs of slate, six or eight inches deep, placed parallel to each other at about as many inches asunder, will be useful in keeping together the roots of small border plants, which it is intended to remove to the flower-garden; or for dwarf evergreens to fill the beds in winter. By this means they may be transplanted with nearly as slight apprehensions of harm as if they had been grown in pots. In broader pieces slate may also be employed to form compartments in a greenhouse border, for confining the roots of strong-growing plants. This will restrain them more effectually, and occupy a smaller space than brick-work. And, besides these purposes, the material may probably be made available for a variety of other objects connected with horticulture.

DIFFERENT METHODS OF TREATING PASSION-FLOWERS.

SEVERAL species of *Passiflora* have been long and deservedly great favourites amongst greenhouse and stove climbers, especially where ample space has permitted them a liberal extension, and something of the gracility of nature has escaped the barbarous use of the knife, and that still more effectual depressor of beauty—the rigid adherence to a formal system of training. Not that we dispute the utility of pruning and training under every circumstance and mode of culture: each of these operations have their use, but they ought also to have a more circumscribed limit than is usually allowed them; and by the observance of a few simple points, much of those evils they are intended to correct may be prevented.

In most structures, and particularly in large conservatories where room is less an object, we meet with some of the species, hanging in graceful festoons from the roof, or climbing loosely round pillars, and forming flowery garlands from one to the other; and in such situations they are eminently appropriate and pleasing. But in smaller buildings, so much latitude cannot be awarded, for it gives an undue and unseemly prominence to one thing, and interferes with the management of others. It is natural, then, to inquire by what means a smaller habit can be induced.

It is a very general practice in the cultivation of climbers to turn the plants out of their pots into a border, where the roots have liberty to ramble and spread uncurbed for a considerable distance. These borders, moreover, are often composed of rich materials to a considerable depth, consequently the shoots grow with amazing vigour, and frequently acquire a luxuriance and redundancy which is exceedingly troublesome, and at the same time a preventive of abundant flowering. And in order to confine the growths, which are thus induced and encouraged, to the limits allotted for them, pruning and training become indispensable.

But, why encourage the formation of that which it is never intended to retain, and the retention of which is, indeed, impracticable? and more especially when the process by which the superfluity is got rid of, is an actual disfigurement of the plant, and, so long as the ability to renew the excess of vigour remains, is but slightly, if at all, conducive to the increase of florescence? It is a worthy desire to seek after the greatest excellence in the appearance of a plant; and in many instances this can only be acquired by bringing into the field the highest stimulatives to growth and vigour; but it is evident that this is not a rule of universal utility, and that a restriction of growth is more favourable to the preservation of the balance which ought to exist between the extension of shoots and the quantity of blossom; if, as we presume none will seek to gainsay, the *summum bonum* of cultivation consists in the production of an amount of flower proportionate to the space occupied, without interfering with the health or diminishing the elegance of the plant.

A more circumscribed space for the roots is plainly the most proper appliance as a preventive of redundant growth; and for this purpose, some cultivators have prepared confined places of from one to three or four feet square, and with about a foot or eighteen inches in depth of good soil well drained, adjusting the space according to the robust or slender character of the species to be grown. This, unquestionably, confers a great advantage, and ought to be more generally adopted with climbers, and indeed in all promiscuously planted conservatory borders; for when a stout and vigorous growing plant and a weak and delicate one fill proximate stations, the strong roots of the former rob the latter of their due nourishment. These spaces, or pits, may easily be concealed so as not to be offensive to the eye, by a thin layer of earth spread over the surface. Another advantage is experienced in these compartments in borders, when it is necessary to remove a plant and replace it by another. When—as will sometimes occur with the best culturist—a plant dies, or it becomes desirable for other reasons to remove it, or when the roots of an unhealthy one need examination, the operation cannot be performed without more or less affecting those plants on either side, particularly if this be necessary during summer. But if the roots be kept separate no such evil can exist, and a plant may be removed with almost the same facility, and as little risk, as if it were cultivated in a pot.

The best material to construct the sides of these compartments is slate, both because it occupies little space in the borders, and is also more easily and perfectly covered, so that the existence of it may not be suspected.

A further advantage will be gained in the case of stove species of *Passiflora* if a slight bottom heat can be communicated, by passing a tank or double gutter beneath the compartments; and as the most usual way is to carry the shoots of climbers under the rafters of a house, this matter will be easily contrived by constructing a raised border all along the front of the house in place of a shelf, devoting the needful space to the roots of the climbers, and filling up the intervening room for the reception of plants in pots. The stiff edge which a naked slate front would present, may be taken off, and a liveliness imparted, by planting Lycopodiums beside it, and allowing them to hang over, and form a kind of coping to it. It must, however, be clearly understood that a dry bottom-heat, such as is communicated by flues, should never be employed; and if the suggestion here thrown out be acted upon, the heating apparatus must be so contrived that the water may be turned off, to flow through other channels, when bottom-heat is not needed. If this precaution be not complied with, a difficulty will be experienced in winter that will "render the cure worse than the disease;" for at the very time when the plants require to be at rest, and, therefore, ought to be exempted from the stimulating influence of bottom-heat, it will be indispensable to maintain constant heat to warm the atmosphere. The apparatus, then, for supplying warmth to the air, must not be the same as that for conveying bottom-heat, though they may nevertheless be in connection, and worked by the same boiler. Considerable judgment and care will of course be necessary in the management; and when to apply it, and when to leave it off, can only be decided by the state of the plant—the most active bottom-heat being required in spring.

On the two principles involved in the preceding remarks—limited extension and bottom-heat to the roots—the copiousness of flowers in Passifloras is greatly dependent, and it is principally to these that we must look to bring about a *dwarf* habit in conjunction with a showy appearance, without impairing the healthy aspect of the plant. And, although we have spoken more especially of Passion-flowers, the practice inculcated is applicable to a large number of other climbers, the ordinary luxuriance of which has precluded from a more extensive cultivation, and is analogous to that mooted with a similar view in a recent article.

Having thus shown the most obvious means by which the necessity of much pruning may be avoided, the next point which obtrudes on our notice is training. As we shall have again to advert to this before we conclude, and as so much has already been given on the subject in former pages, we may here dismiss it with mentioning one or two of the most palpable absurdities. We cannot fix on a greater to find, at the same time, exemplifications so prevalent, as that of spreading out the shoots, and training them regularly under the glass. The gracility of the plant is entirely destroyed, and the blossoms are placed in the most unfavourable view imaginable. Another common practice is to tie the shoots all together, to their extremities, under the rafter, a method scarcely preferable to the other, except that it is sooner remedied by merely loosing the ends, and allowing them to hang down negligently. Little more would then be necessary than to keep them from becoming too crowded, and either to cut them away as they get too long, or tie up the portion that has done flowering. By this mode the flowers will always be in the most conspicuous position.

Hitherto our observations have been limited to plants grown in confined borders; we now turn to their cultivation in pots. It may be said that the treatment enjoined in the preceding paragraphs is equivalent to pot culture: and in some respects it certainly is a close approximation, but, of necessity, only applies to those specimens intended to be permanent features; and it may still be desirable to have a few plants capable of being shifted from place to place as convenience or advantage may dictate. The portability which pots afford entails the capacity for a varied system of treatment, by which some may be had in flower for the greater part of the year; and specimens grown in this way, with their shoots fastened to wire trellises and in full flower, with hardly an unproductive branch, are as ornamental as any of the leguminose green-house plants commonly treated in the same way. They are thus, moreover, brought, by their increased dwarfness, within the sphere of those who have not space for them in a larger state, and who, nevertheless, would rejoice to grow a specimen or two of this curious and universally admired genus.

Besides the kinds which require to be kept constantly in the stove, there are many amongst the hybrids of latter years, that will flower well in the green-house if previously assisted in their growth by a higher temperature. Of this description we may instance *P. Lambertiana*, a kind which will even flower tolerably well without any additional warmth, but is very much improved and prolonged by it. *P. Loudoni* and *P. kermesina* are both species which ought to have a somewhat warmer temperature, although when grown in pots they flower pretty well in a greenhouse. The latter appears to grow and flower alternately, for whilst the shoots are growing freely the flowers rarely expand, and when they do open, and so long as they continue to be freely unfolded, the further growth is considerably checked. This peculiarity brings the flowers nearer together, and enables them to make a finer appearance. Whilst in flower it may be kept in the greenhouse, and as the number of blooms diminish, by removing it to a warmer place, the formation of other shoots will be encouraged to flower in their turn. *P. Princeps* and *P. racemosa*, though much stronger-growing plants, may also be grown well in pots, and from the quantity of flowers they produce in close proximity, and their rich colour, are valuable species: both, however, require a constant stove-heat. By placing a few specimens of some of the preceding kinds in the forcing-houses late in autumn, a constant succession of flowers may be had nearly all the winter.

When cultivated in pots, the shoots should be secured to a trellis as they increase in length, always allowing a portion of the extremity to remain loose. They have perhaps the most elegant appearance trained to an umbrella-formed trellis, twining the shoots rather closely up the central pillar, and carrying them over the wire skeleton, so as to cover it neatly, and then permitting the ends of the shoots to descend from the margins. When they grow too long, some may be cut back to furnish fresh shoots, and others taken up and carried once more round the top, still permitting the extremities to fall over the edges. Another appropriate kind of basket is that with an expanding top, turning over like the upper outline of a vase, so that the same plan of leaving the end of the shoots flowing loosely may still be practised.

To form a specimen of this kind, a healthy young plant should be selected and kept growing vigorously throughout the first season without allowing it to flower, and ocasionally assisting it by watering with liquid manure, and stopping the shoots to increase their numbers. Once formed, they may be continued in a healthy state for several years by renewing the soil and occasionally administering liquid manure, but the most productive plants are usually those about four or five years old. A soil consisting of loam and peat, in the proportion of two of the former to one of the latter, is most suitable.

FLORICULTURAL NOTICES.

NEW OR BEAUTIFUL PLANTS FIGURED IN THE LEADING BOTANICAL PERIODICALS FOR FEBRUARY.

Achime'nes grandiflo'ra. It appears from the Linnæa, that this fine stove plant was first found by Messrs. Dieppe and Schiede in Mexico, growing upon *shady rocks* of the Barranca de Tioselos, near the Hacienda de la Laguna, and was described by them as "a most beautiful little plant, attracting attention by its large violet purple flowers and green leaves, stained with purple on the underside." There is another fine species known, but not yet imported, with flowers similar to those of *A. longiflora*, but having a long spur attached to the base of the corolla tube. It was discovered by Mr. Hartweg between Zitaquara and the Hacienda de Laureles; and, like the present one, also growing in shady places. It is called *A. patens.* (See Vol. X. 145.) *Bot. Reg.*, 11.

Ae'rides odora'tum. This now well-known orchidaceous plant, was primarily discovered by Loureiro in China and Cochinchina, and forms the type of the genus. It was received from China at the Kew Gardens in 1800, through Sir Joseph Banks, and subsequently Drs. Roxburgh and Wallich forwarded specimens from Dacca and Sylhet in the East Indies. The drooping spikes are particularly interesting for their numerous delicate and gratefully fragrant blossoms. *Bot. Mag.*, 4139.

Be'rberis trifolia'ta. "This very rare and beautiful species was found in Mexico by Mr. Hartweg, near the Hacienda del Espiritu Santo, on the road from Zacatecas to San Luis de Potosi, an immense plain occupied chiefly by Opuntias, stunted plants of *Prosopis dulcis*, and Yuccas. It covered large tracts of country; the people call it Acrito, and the fruit was much eaten by children. Mr. Hartweg did not see it in flower. Its sessile ternate holly-like leaflets, beautifully marbled with pale blue and dull green, are entirely different from anything among the pinnated Berberries hitherto discovered; and, it may be added, are much more handsome. In the Garden of the Horticultural Society, it forms a dwarf spreading evergreen shrub, growing freely in a rich sandy loam, and rather dry situation. It has stood two winters planted against a south wall, and seems to be about as hardy as *Berberis fascicularis*. It may be increased in various ways: by layering, by cuttings, or by seeds; but when the kind is rare, like the present, grafting is the most certain and safest way; the grafting may be performed in the ordinary way in March or April, and the bes tstock for working it upon is *B. aquifolium*. When grafted, it should be placed in a cold pit or frame, kept close and rather damp. It flowers freely in April and May."—*Bot. Reg.*, 10.

Cryptade'nia uniflo'ra. "Among the handsomest of the Linnæan genus *Passerina*, were three species, the present, *P. grandiflora*, and *P. ciliata*, which, in habit, as well as in essential character, differed considerably from the others. These, Professor Meisner has wisely separated from *Passerina*, and named *Cryptadenia*, from the presence of eight glands concealed within the tube of the floral envelope, and alternating with the eight stamens. All are natives of the Cape. The present species, though sufficiently known in Herbaria, is probably rare in gardens, though well-deserving of a place on account of the beauty of its copious blossoms, and the long time the plant continues in blow. It has, however, been cultivated at Kew since 1759. It flowers there in the early summer months, in an airy part of the greenhouse." It is a small plant, with twiggy branches and linear leaves, bearing considerable resemblance to the heath or *Epacris* tribe. The flowers, however, are very different, not unlike the aspect of some of the Boronias, but consisting of a tube sunk in the floral leaves, and a large spreading limb of four segments, with a beautiful lilac colour. They appear singly at the end of the numerous and closely packed fastigiate twigs which terminate the branches. Altogether it is really a pretty shrub when well managed; but amid the mass of more novel acquisitions it has fallen into unmerited neglect. It deserves more attention. *Bot. Mag.*, 4143.

Cymbi'dium ochroleu'cum. This plant was formerly figured in the *Bot. Mag.* as *Ornithídium álbum*, under which name, the present, and that of *Camarídium ochroleùcum*, it has been known in our stoves for several years. It is a product of Demerara, "and has a very singular mode of growth, producing its distichous flowers in a leafy spike, quite distinct from the pseudo-bulbs, which themselves originate from the axils of leafy branches." The flowers of the leafy spike open in succession, and are of a creamy-white colour, with a spotted yellow lip, and highly fragrant; but, as they are seldom developed in any considerable quantity at one time—only two expanding at once on the same spike, they do not create any remarkably showy effect: nevertheless, it is worth cultivation, and on account of its spreading and much branched habit, it should always be fixed to a block, or planted in a basket of rough turf, rotten wood, charcoal, and moss, or a mixture of similar materials, and suspended from the roof. It has a fine and copious foliage. *Bot. Mag.*, 4141.

Dise'mma aura'ntia. With the same specific title here applied, this somewhat showy twining shrub, has also been referred by other botanists to *Murucuja* and *Passiflora.* Sir William Hooker says, "The genus *Disemma* (from *dis*, double, and *semma*, a crown,) was established by Labillardière in his *Sertum Austro-Caledonicum*, upon this very plant, a native of New Caledonia, and is readily distinguished, on the one hand from *Passiflora* by the presence of the membranous, truncated crown of *Murucuja*, and from the latter by the outer filamentous crown of *Passiflora.* The species are all of Australian origin, and include, besides the present, *D. Herbertiana*, *D. coccinea*, and *D. adiantifolia;* the latter from Norfolk Island." A specimen supplied to the Royal Botanic Gardens at Kew, by T. Bidwell, Esq., and there cultivated in a greenhouse, flowered in July, 1844. "It is easily cultivated in a pot, with wire trellis, and is remarkable, like *D. adiantifolia*, for the flowers being nearly white in bud, and on first expanding gradually assuming a yellow or tawny tint, and finally becoming a brick red. The sepals have a singularly broad keel, or deep wing at the back." It is a perfectly smooth plant, with the habit of the common *Passiflora cærulea.* The leaves are broad and deeply three-cleft, supported on petioles which have two rounded glands on their under surface at the junction with the *lamina*. *Bot. Mag.*, 4140.

Disoca'ctus bifo'rmis. In the miscellaneous matter of the *Botanical Register* of 1843, the singular plant to which Dr. Lindley now gives the preceding appellative was provisionally referred to the genus *Cereus.* From that family it is readily distinguished by the number of sepals being constantly four, and that of the petals the same,—a peculiarity which has been taken as the distinctive character of the genus, and in allusion to which the name has been formed from *dis*, twice; *isos*, equal; and *cactos*. It "connects the tribes of Phyllanthidæ and Rhipsalidæ, resembling the former in its general habit, large showy flowers, and many-seeded fruit; and claiming kindred with the latter by virtue of its equal parted flowers, definite stamens, and permanent flowers, which shrivel up and cling to the end of the fruit when ripe." Mr. Booth, of Carclew, gives the following account of it:—"It formed part of a collection transmitted by George Ure Skinner, Esq., from Honduras, in 1839, to Sir Charles Lemon, Bart., M.P. It forms a graceful bush, from two to three feet high, but will no doubt attain a much larger size if trained against a trellis, and sufficient room allowed for it to spread." The main stems are round, and about the thickness of a large quill; the others are winged and crenate, those carrying the flowers being more lengthened, and having a drooping character. Only one flower is produced at the extremity of each branch, and these are of a deep pink colour, and of short duration, but open in succession for a considerable time. They are succeeded by beautiful little blood-coloured berries, shaped like an egg (but scarcely so large as the common sloe), which ripen in September, and contribute as much ornament as the blossoms do in spring. These have a rather pleasant, sweetish, sub-acid flavour, and are free from the small spines on the surface, with which the fruit of most cactaceous plants are beset. A turfy loam mixed with river sand and leaf mould to keep it open, forms an excellent compost; and during the growing season the plant should be supplied rather copiously with water, and kept in a low-house or pit, with a moist atmosphere, and well exposed to light, but as the fruit swells off, it should be removed to a drier and more airy place, and kept dry through the winter. Young plants may be obtained either from cuttings or seeds. —*Bot. Reg.*, 9.

Milto'nia cunea'ta. A handsome epiphyte allied to *M. candida*, with flowers nearly four inches in diameter ; the sepals and petals are rich brown tipped with *green* (a primrose colour). The lip is pure white, with a tinge of pink near the base, in form quite different from *M. candida*, for it is scarcely at all curled at the edge, is very much narrowed to the base, and has only one pair of plates instead of two and a half. The wings of the column too are scarcely divided, or at all events not at all notched." It is a Brazilian species, and was introduced lately by Messrs. Rollisson to the Tooting Nursery, where it flowered last March. *Bot. Reg.*, 8. (See Vol. XI. p. 70).

Pleurotha'llis bicarina'ta. "South America, but especially the western side of the Cordillera, and the mountains of Peru and Columbia, abound in species of the curious genus *Pleurothallis*. The present, however, is a native of Brazil, and has thence been received by Mr. Loddiges ; and Mr. Gardner sent living plants of it from Rio to Woburn, which have through that source reached the Royal Gardens of Kew, where they produced their orange-coloured flowers from the bosom of the solitary elliptical leaf, in December, 1843. The species is well-named by Dr. Lindley from the sharp keel on each side of the lateral sepals." It forms tufts of jointed angular stems from two to five inches long, clothed at the joints with sheathing scales, having numerous rich chocolate-coloured spots on a yellow ground. Each stem is surmounted by a fine elliptical leathery leaf faintly striated on the surface. From a hollow at the base of this leaf a stalk bearing a spike of orange-red flowers proceeds. *Bot. Mag.*, 4142.

Sola'num macra'nthum. "A native of Brazil, and has been long cultivated in the Royal Botanic Gardens of Kew, where, planted in the border, it has attained to the height of the roof. In such a situation it really makes a handsome appearance, with its ample foliage and its large pale lilac coloured flowers, which, drooping as they do from the upper branches, are seen to great advantage from below. To those cultivators who have not space to allow its growing thus freely, cuttings may be recommended, which strike freely, and flower almost as soon as struck." In the Kew gardens it forms a tree twelve or fourteen feet high, and in its native country probably attains a much greater height. The branches spread, and are covered with rusty-green wool, and copiously armed with stiff thorns. The leaves are somewhat egg-shaped and sinuate at the margins, the surface strongly reticulate, downy above, and almost woolly beneath. The flowers are in racemose clusters, springing from the base of the leaves, but not extending far from the stem. Like the rest of the plant, both the flower-stalks and the tube of the calyx are beset with thorns, and clothed densely with wool. It is a strong and rather coarse-looking plant, scarcely requiring a stove heat. *Bot. Mag.*, 4138.

NEW OR INTERESTING PLANTS RECENTLY FLOWERED IN THE PRINCIPAL SUBURBAN NURSERIES AND GARDENS.

Angræ'cum bilo'bum. This neat orchidaceous plant developed a raceme of glistening white flowers in the stove of Mrs. Lawrence at Ealing Park, about the end of January. The peculiar arrangement and form of the sepals, petals, and lip, confer a stellar appearance on the blossoms ; which are rendered additionally interesting by the graceful drooping curvature of the stalk that carries them, and the deep green of the foliage behind. It is a rather diminutive plant, a native of the Cape coast, and has been some years in the collections of this country.

Beaufo'rtia sple'ndens. Mr. Knight has a fine species of *Beaufortia* under this name flowering beautifully in one of the greenhouses at the Exotic Nursery, Chelsea. The general habit of the plant is not strikingly different from that of *B. decussata*, but the inflorescence, instead of being of a purplish-crimson hue, is of a fine glowing scarlet. The flowers of these plants owe their attractiveness to the bundles of stamens, and their long claws, which in the present species are above an inch in length. The calyx and corolla are very minute and pale yellowish green, their segments having the appearance of small scales ; and from their position—being quite sessile and very closely arranged all round the stem—are entirely concealed by the more specious filaments. It is a greenhouse shrub, and likely to be very useful, from its winter-flowering capacity.

Centropo'gon fastuo'sum. An extremely handsome Lobeliaceous plant has been received, with this title, at the nursery of Messrs. Rollisson, Tooting, from a continental establishment. It has been kept in a house with a temperature ranging between the stove and greenhouse, but will doubtless be found to endure the latter without detracting from its ornamental aspect, and may probably acquire additional vigour from it. When full-grown it appears to attain a height varying from a foot and a half to two feet and a half, the stems assuming a slightly flexuose character. The whole of the plant has a smooth shining appearance, if we except a trifling pubescence which is found on the petioles and extreme young shoots. The leaves are usually about five or six inches long, of a lengthened ovate form, with a rounded base and an acute apex, and remotely toothed on the margins. Their fine green colour and lucid appearance are high recommendations. The flowers issue from the axils of the leaves, but are confined to the upper portion of the stem ; and through their superior size, fine rose-colour, and immediate proximity to each other, they contribute a considerable amount of show. The corolla is tubular, curved, and somewhat flattened at the sides, with a two-lipped limb, the upper lip consisting of two convolutely reflexed segments, and the lower of three, two of which are falcate with their points approaching the intermediate one. It is a perennial plant, of an herbaceous or suffruticose habit, and as a large bush will be a conspicuous object.

Dendro'bium Kingia'num. Several specimens of this neat little plant have been flowering for some time at the Hackney Nursery. The pseudo-bulbous stems are about four or five inches in length, closely clustered together in large masses, and have a broad base gradually tapering towards the top, which is surmounted by two or three fine dark green oblong leaves. The flower-stalk springs from amongst the foliage, and supports a few small loosely arranged blossoms with pale purplish sepals and petals, and a lip beautifully marked with a sanguineous hue. It is a recent acquisition, and though not equal in size or beauty to many of its congeners, is, nevertheless, invested with considerable interest.

Epiphy'llum Ru'ckeri. This appellation has been given to a plant in the possession of Messrs. Rollisson, of Tooting. It is, undoubtedly, nothing more than an improved variety of *E. truncàtum*, and exactly accords with that species in every respect except the colour of the flowers, which display a combination similar to those of *Cereus speciosissimus*—a rich violet merging into a fine crimson. We understand it has been in private collections for ten or twelve years, but not having come into the London market till lately, has only had a limited circulation. It has probably been obtained by fertilizing with some such species as *Cereus reptans.*

E'ria profu'sa. We cannot claim a very showy character for this species, but there is a peculiar neatness and elegance about it, that is scarcely less interesting. The stem is in the form of a lengthened sphere, prettily striated, and on the upper part furnished with ample foliage of a pleasing order. The blossoms are borne in racemes nine or ten inches long, and are exceedingly numerous, but minute, and yield a very agreeable fragrance. It is a product of Manilla, and has been flowering recently in the collection of S. Rucker, Esq., at Wandsworth.

Habrotha'mnus purpu'reus. This plant does not appear to answer expectation. In every instance that has come under our notice where flowers have been obtained at all, they have been insignificant in comparison with other organs,—a fault that meets with no compensation either in their quantity or colour. The latter is a pale, watery purple. A possibility remains, however, that it may eventually be somewhat improved, but we can hardly hope to see it attain a mediocrity of attractiveness. It has bloomed at Messrs. Rollisson's, and Messrs. Knight and Perry's establishments.

Physia'nthus aurico'mus. The flowers of this beautiful stove-climber are so much like those of the *Stephanotis floribunda,* both in general contour and colour, that at first sight, if viewed apart from the plant, they might easily be mistaken for them. They are collected into tolerably large clusters, supported on short peduncles which spring from the axils of the leaves. The diameter is about an inch and a half from the tip of one segment to the tip of the opposite one, but as these are considerably reflexed, they appear somewhat less. They yield a grateful fragrance, which is usually more powerful in the evening. When well managed it grows quickly, producing fine healthy stems clothed with leaves of an obovate form with an acute termination. The flowers are most profusely displayed during the autumn months, and individually last for a considerable period. At Mr. Knight's Nursery, a plant flowered a short time ago.

Rondele'tia specio'sa ma'jor. Messrs. Henderson of Pine-apple Place have bloomed several plants of this superior variety. Its peculiarities are, larger flowers, with the segments broader and flatter, and produced in finer clusters. It possesses the same colour and freedom of blooming for which the primitive kind is so much admired. As an autumn and winter-flowering plant, it will be valuable.

OPERATIONS FOR MARCH.

Last month the efforts of the culturist were directed principally towards repressing the returning tendency manifested amongst house plants to resume an active state : in the present the general tenor of necessary operations denotes an essentially different aim. March is a month of preparation for growth, of gradually returning activity and vigour, and demands all the energies of the cultivator : consideration, promptitude, and perseverance, are alike indispensable, for without the full exercise of each and all, the whole after labours of the year *may* be nullified, and will certainly be deprived of a portion of their effect.

In illustration of these remarks, we need only adduce the fact that many plants require a full season to form and mature their growth, before any flowers are developed ; and, if growth is delayed or checked after the proper period for excitation, or contracted through negligence in affording a sufficient proportion of nutriment, the inflorescence must be abridged in amount, or entirely prevented by the conclusion of the season, before the plants arrive at a condition capable of producing flowers ; and plants that bloom in a much shorter period will rarely produce an equal quantity without a decrease in individual excellence, at any other than their legitimate time.

These preliminary observations bear directly on two of the great operations of March, potting and propagating. Before a plant receives any artificial stimulus, it is an axiom in culture that it be placed in a condition to support it vigorously. During the period of growth, moreover, a plant should ever be in a gradually progressive state ; but when it has commenced to grow, and afterwards receives a check, in order to supply it with the means of continuing, a retrogression is made, and it is placed in a similar condition, if not worse, than at first. Now most deciduous pot plants are benefited by an extensive renovation of earth in spring, and the same proceeding, but in a much more limited sense, is profitable to pot-evergreens. It must hence be obvious that a serious repression will be imposed on the development of shoots, if this work be postponed till long after the arousal of the plant from a state of quiescence. Potting, then, must be one of the first considerations ; but as all the plants will not be in an equally forward state, it is neither advantageous nor economical to go through this work promiscuously. Some plants will require it immediately, others may be safely deferred till near the end of the month ; consequently, a considerate cultivator will look over his collection from time to time, and select those which appear in the most immediate want.

The perusal of the pages of a former Volume, which contain a detailed account of the theory and practice of potting, and embrace all the modern improvements, may be beneficial at this time. We may here, also, repeat an oft-reiterated advice in the preparation of soil. That which includes a large proportion of stringy vegetable matter is invariably the most appropriate ; and to make it fit for the purpose, it should be cut with the spade into pieces of a few inches square, and afterwards reduced to the desired state by tearing it with the hand. This last is less material in the case of large plants than with small ones ; but it should always be adopted for heaths, the finer New Holland Leguminosæ, and other things with very tenuous, delicate roots.

As a general rule, young healthy plants are by far the most suitable to choose for making handsome specimens. Special circumspection should be bestowed on securing efficient drainage, and a regular circulation of fluid through the soil. This state can only be effectually attained by a particular attention to the texture of the soil used, which must, in all cases, be such as is free from the liability to run into a solid mass. Weakly or unhealthy plants will generally be benefited by transplanting to a pot of smaller size; and large shifts must never be given to any except healthy specimens beginning to grow, and with good roots.

All those tender perennials, which were raised from cuttings in autumn, and have remained through the winter in the propagating-pans, should be potted off singly, or two or three in a pot, as circumstances dictate, in order that strong, healthy plants, may be furnished for the flower-garden in May. We know that this matter is often necessarily deferred till April for want of room, and sometimes even altogether dispensed with; but no one who has the ornamental condition of his garden in view through the summer months, will omit to avail himself of the advantages conferred by an early encouragement to grow. Plants preserved in the cutting-beds till they are required for the flower-garden seldom flower till August or September, and must be planted much closer, to enable them to cover the beds completely.

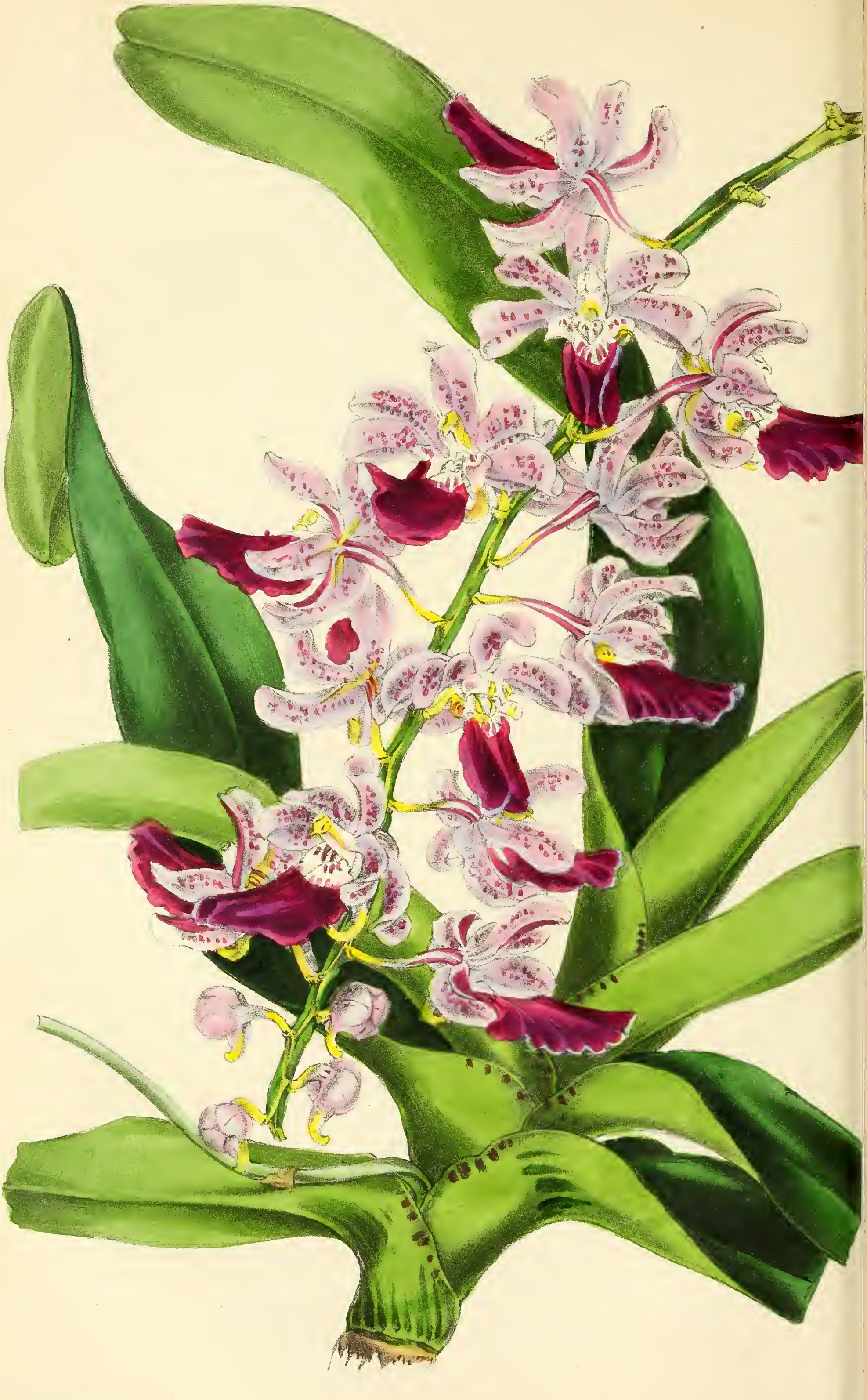
For the same reason, wherever an adequate stock of plants was not provided in autumn, or has been diminished by the casualties of winter, immediate resort must be had to propagation by cuttings to supply the deficiency. And if this is needful to a large extent, a frame or pit with a gentle bottom-heat should be set apart for the purpose. It is not, however, by any means a desirable plan to defer making a sufficient provision for the flower garden till spring, for the plants now reared are unable to attain the strength and hardihood of the autumn supply before they are wanted for the beds.

The neglect of stopping the shoots of plants intended for the parterre is a very popular error. The chief object now ought to be to procure compact bushy plants, rather than long straggling ones. By this means a number of shoots will be ready to push forth immediately the plants take root in the soil, and it will ensure well covered beds, and a copious bloom, all other circumstances being favourable. The same practice must also be observed in the early spring with those pot plants that betray a rambling nature, or are too little inclined to branch laterally. And we may here insist on the necessity for pruning away many of the twiggy growths of the preceding season at the time of the first spring potting, especially with deciduous species. If this is passed over, the shoots of the current year will be slender and imperfect, and if they produce flowers at all, they will be inferior to what might be obtained under more auspicious treatment.

This is a proper time for sowing the seeds of greenhouse and hardy perennials. Such things as Gloxinias, Thunbergias, Chinese Azaleas, &c., which are very liable to "damp off" immediately after germination, should be eyed with a scrupulous watchfulness, and drying measures must be directly employed whenever an excess of humidity is thus pointed out. This proceeding needs to be performed with caution, for a too rapid transition from wet to dry will act as banefully as the evil itself. Annuals, moreover, may be sown, both for flowering early in the greenhouse, and for turning out into the beds. Balsams, Cockscombs, and similar things, may be sown in a stronger heat, and should be potted off very early, and kept in a warm pit or frame with a good bottom heat.

In the management of plant-houses and frames, moisture must still be cautiously awarded. If the weather be very dry and sunny, a slight syringing may be occasionally practised in the greenhouse, and will be necessary still oftener in the stove and orchidaceous house. In the greenhouse it should always, however, be done in the early part of the day; and both here and in the pits and frames any watering that may be required at the roots should also be given in the morning. The practice of continuing to throw wide the ventilators cannot be approved of now, as the plants are beginning to grow and require more protection; less air must consequently be given, especially in keen windy weather. Indeed, we believe, that to the generality of New Holland plants a little extra warmth would be beneficial: in the case of many species it undoubtedly confers an improved appearance.

Continue to employ every devisable means for the effectual subversion of insects, for they will now multiply by myriads, and derogate the effect of the best system of culture, unless strenuous exertions are constantly made to preserve the mastery over them. Clear away all decayed leaves and weeds as they make their appearance; and when the weather is unfavourable for out-door work, let the outer surface of those pots that require it, be washed perfectly clean. Nothing enhances the effect of a collection of well-grown plants more than the maintenance of neatness, cleanliness, and order around them.



S. Holden del & Lith

Aerides maculosum.

AËRIDES MACULÒSUM.

(Spotted Air-plant.)

Class.
GYNANDRIA.

Order.
MONANDRIA.

Natural Order.
ORCHIDĀCEÆ.

Generic Character.—*Perianth* spreading or closed. *Sepals* lateral, often oblique at the base, having a claw connate with the column. *Lip* with a claw jointed to the column, saccate or spurred, three-lobed; lateral lobes short; middle one cucullate or awl-shaped, or shortly tumid, or partially arched. *Column* reclining on the ovary, short, winged. *Anthers* two-celled. *Pollen-masses* two, furrowed at the back. *Caudiculæ* broad or filiform; *gland* peltate, subrotund.

Specific Character.—*Plant* an epiphyte. *Leaves* distichous, channelled, very broad and thick, obsoletely notched, obtuse and very obliquely terminated, spotted with brown at the edge of the under surface near the base; very densely set. *Flowers* fragrant, rose-coloured, spotted with purple. *Sepals* ovate-oblong, somewhat recurved at the margin, spotted. *Petals* rather smaller, less fleshy, more acute and oblique, and more numerously spotted. *Lip* large, ovate; lateral lobes very small, falcate; intermediate one very much larger, long, deflexed at the margins, undulated, deeper coloured; spur curved beneath it, greenish yellow at the point.

The specimen of this novel species of Air-plant which supplied the means of executing the attached plate, flowered in the choice collection of C. Horsfall, Esq., of Liverpool, and was courteously forwarded to us by that gentleman, in July, 1844. About the same period we observed flowering specimens at the extensive nursery establishments of Messrs. Loddiges, and Messrs. Rollissons.

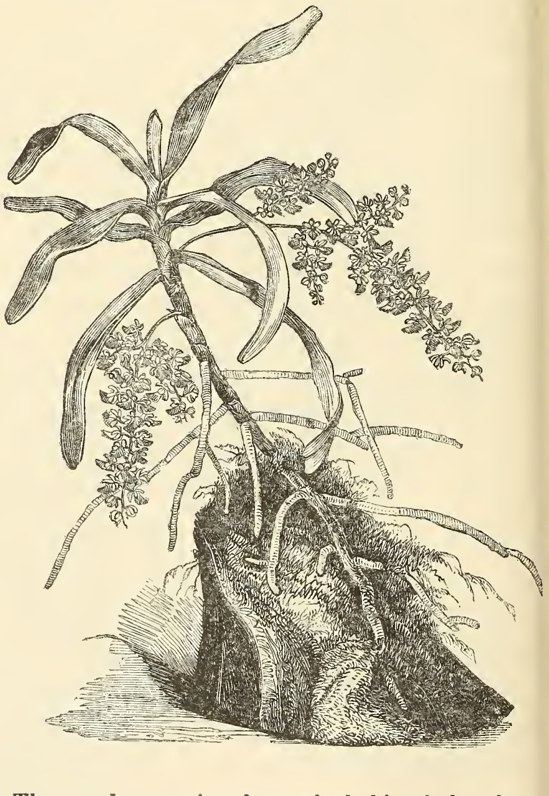
The character of the plant, as regards the peculiarities of stem and foliage, exhibits a close approximation to the same features of *A. rubrum*, but the leaves of that plant are not nearly so broad as in *A. maculosum:* indeed, we find differences sufficiently discernible to admit of an easy recognition amongst its nearer congeners, upon a very cursory inspection. From *A. affine*, to which it bears considerable analogy in the lineaments and arrangement of the flowers, it differs in having much thicker roots, and leaves not more than two-thirds as long, but fully a third broader, and instead of the notched extremity they have an obtuse and very oblique termination. In addition to these distinctions, the manner in which the leaves of *A. maculosum* are crowded together on the stem is a very prominent variation; and it is rendered sufficiently apparent by this character amongst most other species. *A. crispum* (or *A. Brookii*) another kind akin to this, is distinctly removed in habit; that plant has both broader and shorter leaves than *A. maculosum*, and they are also much wider apart, whilst the stems evince far greater vigour: and besides these differences, the proportion of the parts composing the flower is something varied.

Our subject is a comparatively scarce species, and had not flowered in this country prior to the instances above mentioned. It is an East Indian species, and was imported from Bombay two or three years ago.

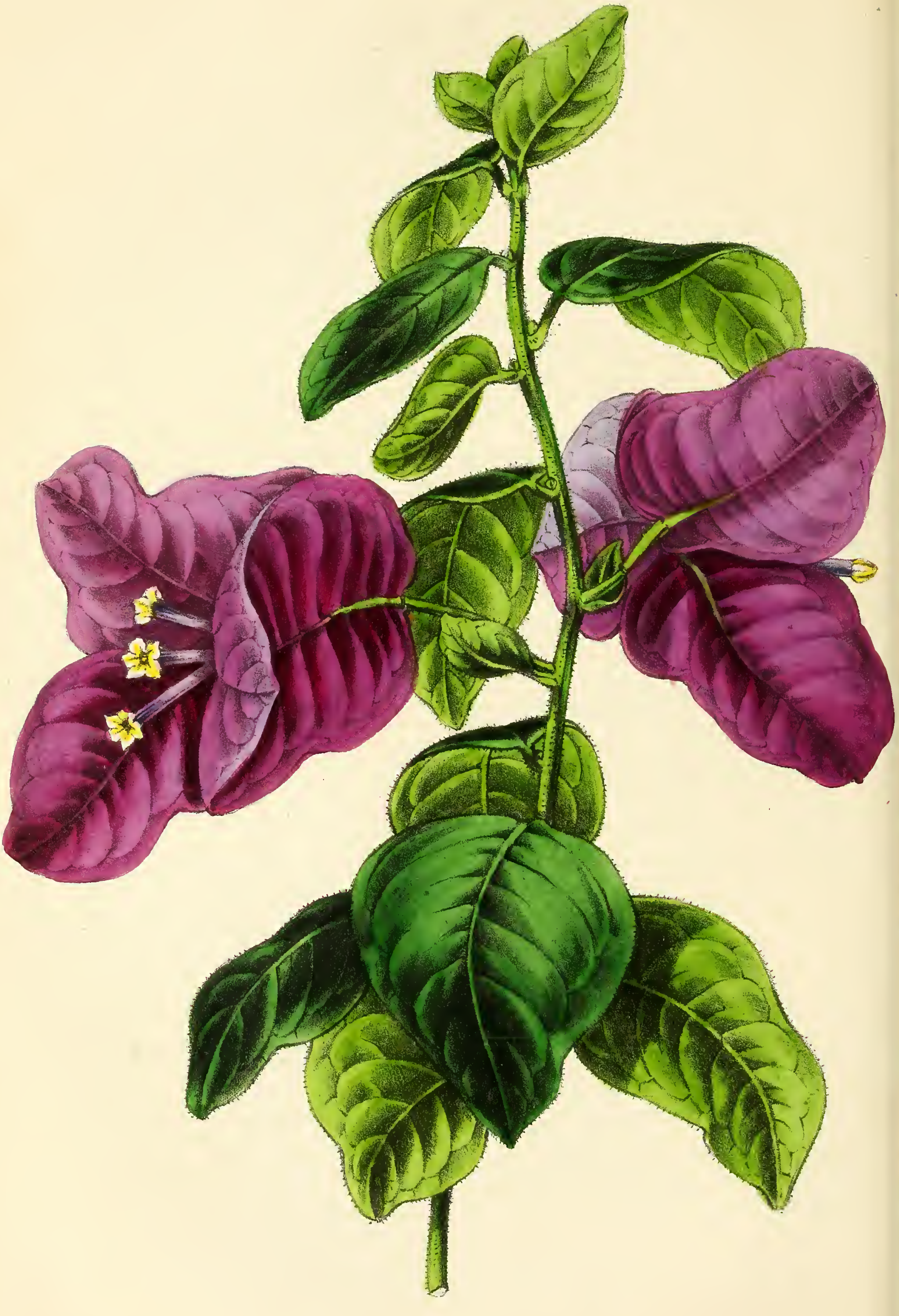
The flowers are arranged in racemes, which have usually two or three lateral clusters of inferior length issuing from the side of the main one near its foot. The graceful, half nodding, half drooping position of these aggregations of blossom, their soft, delicate tints, and above all, the exquisite fragrance which proceeds from them, constitute a most pleasing and acceptable combination. The individual size of the flowers is intermediate between *A. crispum* and *A. affine*, but more nearly approaching the former.

These plants inhabit hot and humid forests, clinging to the trunks and branches of trees, by the dense foliage of which they are sheltered from the blaze of a burning sun. Along the stem they protrude numerous thick roots, sometimes extending to a vast length, and usually considerably more vigorous and more brittle than those by which they are attached to the trees ; and it is evident that the plants derive a large proportion of their nourishment from the moisture floating in the atmosphere, through their instrumentality. Cultivators have seized on this peculiarity to determine the proper mode of procedure in managing them ; and we constantly find the species thriving most favourably where the principles which the foregoing facts involve are most completely adhered to, and adjusted to each other.

A block of wood to attach the plant to, is always preferable to planting it in a basket or pot; but it will be advisable to envelope the lower part of the stem and a few of the roots in moss. And a thin screen should be interposed in summer to subdue the intensity of the sun's light, and prevent it from affecting the uniformity of atmospheric moisture. This section (*Vandeæ*) require a higher temperature than the majority of other Orchidaceæ, and should be frequently syringed during the season of growth. In winter the removal of the screen, a depression of temperature, and a more arid atmophere, are the obvious means of preserving a quiescent state.



The wood engraving shows the habit of the plant.



Holden del & Lith

Buginvillæa spectabilis

BUGAINVÍLLÆA SPECTÁBILIS.

(The remarkable Bugainvillæa.)

Class.
OCTANDRIA.

Order.
MONOGYNIA.

Natural Order.
NYCTAGINÀCEÆ.

Generic Character. — *Involucrum* three-leaved, coloured, with a flower springing from near the base of the mid-rib of each leaf, three-flowered. *Perianth* tubular, with a narrow throat; limb folded, obsoletely five or ten toothed, persistent. *Stamens* seven or eight, hypogynous, free, enclosed in the perianth. *Ovary* one-celled; *Ovules* solitary, erect; *Style* simple. *Stigma* undivided. *Achenium* an angular hardened tube, within the perianth, free, shut in by the persistent involucrum. *Seeds* erect; endocarp testaceous, connate. *Embryo* enwrapped in amylaceous albumen. *Cotyledons* conduplicate; radicle outward, inferior.

Specific Character. — *Plant* a spinous, evergreen shrub. *Branches* alternate, nearly terete, beset with crooked spines, and when young covered with numerous short brownish hairs. *Leaves* alternate, ovate, obtuse, covered with soft hairs, those on the upper surface being much shorter than the under. *Peduncles* axillary; pedicels united to the mid-rib of the bracts. *Bracts* oval, purple. *Perianth* shorter than the bracts, swollen at the base, contracted and twisted above the middle; limb five-toothed.

Climbing plants at the present day occupy a considerable share of attention; but of the numerous species which possess this interesting habit, there are not a few that show a reluctance to develope their flowers, and often retain their sterility for many years.

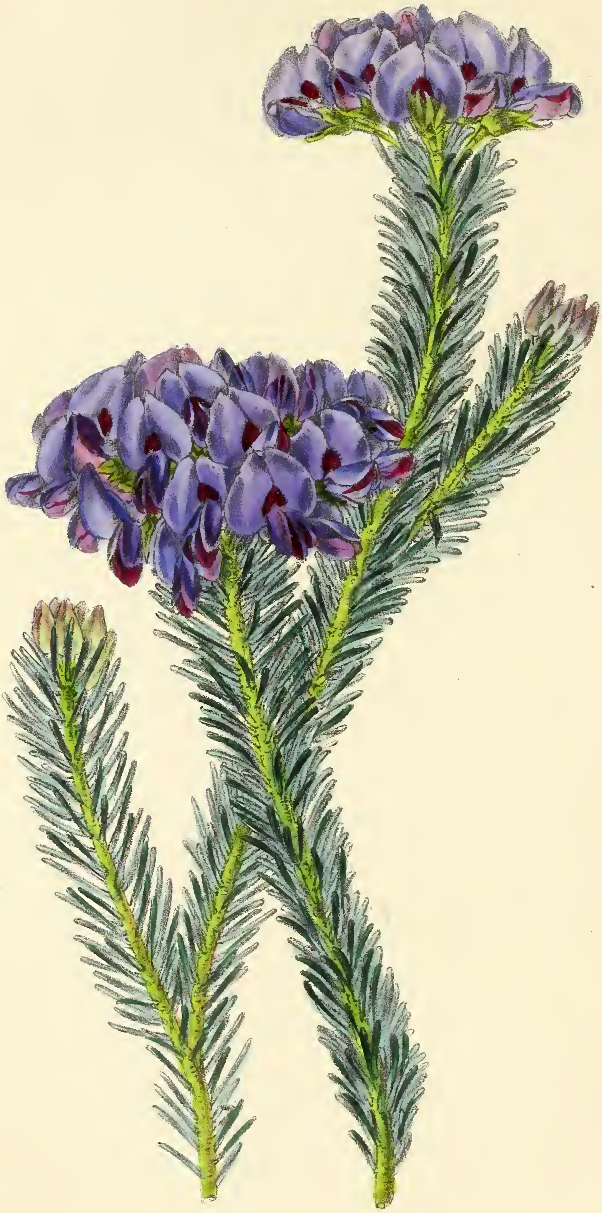
Of this class is the subject to which we now invite attention. Its merits were unknown to British cultivators, except through wild specimens from its native country, and by flowers sent over from continental gardens, till the specimen growing in the large conservatory at Chatsworth disclosed its singular and beautiful inflorescence about two years ago, and again in still greater profusion throughout the greater part of last summer. Judging that a plant which has so long disappointed cultivators, cannot fail to be interesting, we had the accompanying representation taken from blooms that expanded in July.

The showiness of the inflorescence is entirely vested in the large, gaily-coloured bracts, of which a pretty accurate idea may be gained from our figure, though they possess a silky softness which no touch of the pencil can imitate. Combined with their beautiful appearance, they carry with them the additional recommendation of enduring for a long time. In fact they possess a property similar to that common amongst Compositæ, and familiarly termed "everlasting." We have now before us the specimen from which our drawing was prepared, the bracts of which (although their preservation has been entirely accidental and unregarded,) still retain their position, form, and colour, almost as perfect, fresh, and fair as ever.

We understand it has been grown many years in the Jardin des Plantes at Paris, where it is planted in the border of a stove, and trained against the back wall; and in this situation has spread over a considerable space, and flowered copiously, for at least the last ten years. From all we can learn, it has never flowered till the specimens have acquired age and considerable size; nevertheless, we are far from believing it impossible to obtain blossoms from much younger and dwarfer plants. Many plants usually received as shy bloomers, have been induced to disclose flowers in profusion, by subjecting them to bottom-heat. The plan suggested in a recent number for promoting the fertility of climbers will most probably be found beneficial here. And, moreover, the state of the parent plant from which the cuttings are procured, exercises a far more extensive influence on the progeny, than is generally thought of. Cuttings of a moderate strength taken from a plant in a free-flowering condition, bloom much earlier than those raised from the vigorous shoots of a young specimen; and fertility is still further hastened by choosing the lateral growths of flowering branches.

It was originally introduced to this country from Peru, in 1829, and seems to require the temperature of the stove.

The genus commemorates the celebrated De Bugainville, one of the most successful of French circumnavigators, to whose expedition the well known and indefatigable botanist, Commerson, was attached from 1766 to 1769.



S Holden del. & Lith.

Burtonia conferta

BURTÒNIA CONFÉRTA.

(Crowded-leaved Burtonia.)

Class.
DECANDRIA.

Order.
MONOGYNIA.

Natural Order.
LEGUMINÒSÆ.

Generic Character.—*Calyx* profoundly five-cleft. *Petals* five, deciduous, about equal in length, two of which are concrete into a keel on the back. *Ovary* two-seeded. *Style* subulate, dilated at the base. *Stigma* obtuse, bearded. *Legume* roundish, ventricose. *Seeds* without a strophiola.—*Don's System of Gardening and Botany.*

Specific Character.—*Plant* a smooth evergreen shrub. *Stem* ascending, angular. *Leaves* simple, awl-shaped, with sub-recurved ends, pallid base, and revolute margins. *Corymb* terminal, many-flowered. *Calyx* green, glaucous, covered with a smooth pubescence. *Petals* violet.

This charming little plant is a native of New Holland, where it was discovered on the South Western coast, by Mr. Baxter, and transmitted to England about 1830. It is remarkable for its neat and elegant growth, and is at the present time met with rather extensively in most of the principal nursery establishments around London. The specimen from which our figure was made was kindly supplied by Messrs. Henderson, of Pine-apple Place.

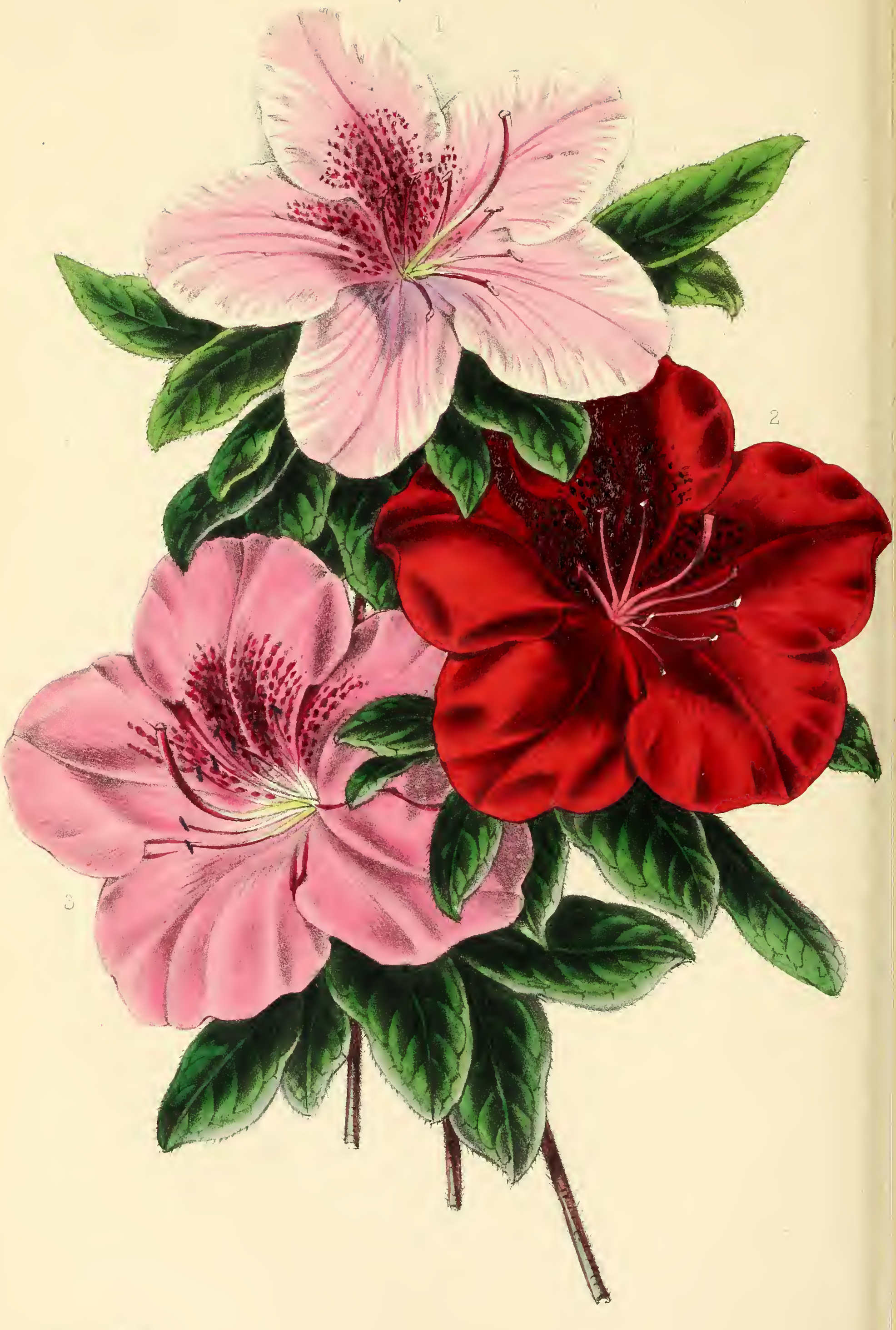
From the dwarfness of its habit, and the great profusion with which the flowers are borne, it is admirably adapted for a choice and limited collection. But it demands considerable attention to enable it to develope its qualities in perfection, and is not a little altered under the different degrees of skill and watchfulness bestowed on its culture. Much like a heath in outward appearance when destitute of flowers, it also requires a treatment in many respects analogous, and will always be most successfully managed apart from the soft-wooded and succulent tribes. The flowers appear in the most prominent station—at the very extremity of the shoots, and are arranged in dense clusters; and when the plants are kept in a healthy vigorous state, the shoots occasionally shortened back to favour the increase of laterals, and spread out to form a neat bush, they carry a somewhat imposing aspect.

One of the most important features in its cultivation is to provide a sufficient drainage, and adopting measures to prevent it from becoming defective; for if a superabundance of water remain in the vicinity of the roots, these organs, which are of an extremely tenuous and delicate structure, will incur serious injury. The texture of the soil employed in potting should also be open and full of fibrous matter, to prevent the particles from running close, and adhering together. It may, however, be rendered too open, and thus subject the plant to great inequality of moisture; this must be guarded against. A soil of a fine grain is objectionable on account of the difficulty of getting it thoroughly moistened, if at any time it chance to become too dry. A rough heath-mould, a portion of decayed leaves, and river-sand, make an excellent composition. Much depends on regular attention to watering, as either extreme wet, or drought, is sufficient to produce death in a very short time.

During the latter part of summer, it may be set out of doors in some place where it will not be much exposed to the mid-day or afternoon sun, observing also to defend it from violent winds and dashing showers.

It is propagated with great facility by cuttings taken from plants in a free growing state, inserted in sand, with a bell-glass, and subjected to a gentle bottom-heat. They should be potted out separately, immediately after roots have formed, or they are apt to " damp off."

The generic name was given by Dr. Brown, to commemorate the services of Mr. David Burton, a zealous, active collector for the Royal Botanic Gardens at Kew; who after having sent home a considerable number of plants, died in New Holland. The close and somewhat crowded arrangement, both of leaves and flowers, appears to have prompted the specific name.



J. Andrews del & lith.

Azalea Indica var. —
1. *Exquisita* 2. *Optima.* 3. *Broughtonii.*

SEEDLING CHINESE AZALEAS.

(1, Exquisita. 2, Optima. 3, Broughtonii.)

Class.
PENTANDRIA.

Order.
MONOGYNIA.

Natural Order.
ERICACEÆ.

GARDEN VARIETIES.

THE popularity already attached to the numerous superb varieties of the Chinese Azalea in common cultivation, is likely to be considerably increased by the recent addition of a number of seedlings, of a decidedly improved character. An extensive assortment of these flowered last spring in the exotic nursery of Messrs. Knight and Perry, at Chelsea, and a selected few were noticed at that time in our last volume, and figures executed of the three splendid kinds which constitute the accompanying group.

Considering the important feature which the family now contribute to the great metropolitan floricultural shows, and indeed generally to similar exhibitions throughout the provincial districts also, we have reason to believe that the present embellishment will be favourably received by the mass of our readers, and the exertions of the hybridists, so signally successful, will meet with a corresponding encouragement. We can only give our selection as a *specimen*, chosen rather for their relative distinctness, than for any superiority they possess over several of the others noticed last season, some of which are undoubtedly as deserving the attention of the culturist as the three now depicted. We do not, therefore, wish to exalt them above the varieties in question, but merely to show how much they are in advance of those which have already elicited, by the flaunting gaiety of their flowers, such a copious amount of public patronage.

The habit of all these plants presenting scarcely any variation, and our representation conveying a very correct notion of the flowers, it would hardly appear necessary to allude individually to any of the varieties depicted, were it not for an approximation in the flowers of *exquisita* to those of an older acquaintance (*A. ind. variegata*), which might lead some to regard it as the same thing. It differs from that variety in the spots, and the edges of the pink colouring being more distinctly defined, and in the blossoms usually appearing in large clusters, and is decidedly a much superior kind. It was produced a the nursery of Messrs. Knight and Perry, a few years ago, together wit *Broughtonii*, and many others, from a quantity of seeds, gathered almost promiscuously from most of the principal sorts in general cultivation. The latte was named in compliment to Sir John Broughton, in whose collection the famil exhibits manifest marks of the attention and excellent management bestowed upo it. *Optima* is also an English seedling, obtained, we believe, in a privat collection, and purchased exclusively by the same establishment.

To manage these plants well, they ought to be potted in rougher material than the fine, sandy heath-soil they commonly obtain, and a portion of leaf-soi assists vastly in improving their general appearance, especially in the deepene verdure of their leaves. They require copious supplies of water in spring ; and ol plants, whilst growing, receive visible benefit from well-diluted liquid manure given about every third watering. A frame, or pit, where a moist, shade atmosphere can be preserved, is the best place at that time ; but later in th season, they should be gradually brought to a full exposure in the sun, and a fre play of air, to mature their shoots and enable them to make provision for nex season's bloom. Further directions will be found in detail at page 160 of ou last year's volume.

CONSIDERATION OF LIGHT.

Several years ago we offered a few remarks upon the Philosophy of this beautiful emanation, which we shall not again repeat; but, as connected with the subject of heat, we propose to follow it up, so as to render theory practically useful, either by direct inference, or by deduction from observed facts.

It is probable that we may never attain to a knowledge of the precise nature of light, because we cannot determine *that* of its assured source—*the Sun.* Still there are many phenomena which lead to a shrewd conjecture of its elements, and to these we may safely refer.

There are three distinct series of phenomena, traceable to solar influence, to which we invite the attention of the inquiring cultivator; namely, 1st, those of attraction—2nd, those of temperature—and, 3rd, those of colouration.

The principle of attraction is manifested in the position assumed by leaves under the several angles of sunlight at different hours of the day. Thus, in *Erythrina*, we see the leaflets brought into first the *horizontal*, and then the *upright* position, at about eight or nine o'clock of the forenoon, and thence to mid-day—declining in proportion as the sun advances to the west. *Attraction*, whatever be its medium, is demonstrative of electric agency; this, at all events, will not be disputed when it is attended with luminous appearances.

But then, it may be contended, that the phenomena of magnetism and of chemical attraction do not generally, or of necessity, develope light. This is true, but as respects magnetism,—which is induced by the electric current, and, therefore, dependent upon it; so much so, as all but to prove that electricity and magnetism are one in essence. And as to the latter, when chemical attraction takes place, as between acids and alkalies, the combining powers unite, and thus neutralise each other. In conformity with these chemical phenomena, light may be considered as exerting an invisible attraction upon the points and foliage of vegetables, which induces the flow of the sap in an *upward* direction, and also the *lateral* courses of the fluids through the tissue of the cells, and that of the medullary processes, thus producing the laboration and concoction of the proper specific juices of each individual plant.

There must be a governing agent,—and therefore we repudiate that maudlin language which ascribes volition and choice to inanimate structures.

2. *Temperature*, its rise and fall, are discerned as measured by our very imperfect instruments. In nine cases of ten, temperature is only a result of excited chemical action, of which combustion is one form; but as referred to the Sun, the manifestation of direct heat is generally ascribed to the red rays, while those of magnetism are found in the blue and violet. Still the entire solar, or *white* ray, diffuses heat and light, without communicating heat to the transparent medium

through which it passes, unless that medium be susceptible of electro-chemica changes.

This leads us to the consideration of that substitute for glass which wa announced some time since, under the title of Whitney's composition. It is no perhaps fortunate, that Drake's sheet-glass may soon be obtained at comparativel small cost; but still, the varnished canvas was a great acquisition, because th direct light of the full solar rays might thus be diffused throughout a house, or pit communicating its softened, genial temperature, without danger of scalding b lenticular action. But the cloth decays, cracks, perishes; and not only so, i becomes patchy, discoloured, and offensive to the eye. What are the causes of thes disagreeable concomitants, which threaten to deprive the forcing gardener of one o his best appliances?

It will be found, that if a frame of varnished linen, or calico, be kept in dwelling, unexposed to the evaporation of the soil underneath, and to the actio of moisture from above, the decay will rarely occur. Whereas when employed as horticultural covering, it will speedily become blotched or stained all over wit fungus, lichen, or some such cryptogamous vegetation. Here then we perceiv the agents of decay, and hence, if some ingenious person could incorporate *with* th varnish, or superpose *upon* it, when applied, a certain antidote, or repellant of th invader, the varnished screen might last for years, sound and in a decent condition We have thought of creasote, and bichloride of mercury (corrosive sublimate), bot inimical to mouldiness; but it does not as yet appear how either of them could b satisfactorily applied, because the former, if blended with the bulk of varnish, might be so masked as to lose its protective qualities; and the sublimate, if merely laid over the varnish as a wash, would be carried away by rain from the upper surface and by watery vapour from the under surface. Perhaps a thin varnish o caoutchouc (Indian rubber) dissolved in pale naphtha would be found to act efficiently in every way.

We have said that the sun does not heat the glass through which it passes— and glass is an electric; but it does heat the linen screen: hence, chemical action is induced, and, strange to say, under these circumstances cryptogamous vegetation preys upon the tissue: we have much to learn in circumstances of every-day occurrence.

The late President, Mr. Knight, was exceedingly curious in his endeavours to discover the causes of particular phenomena. He thought that *gravitation* had a very important influence on the growth of plants; and Professor Davy, with whom he was intimate, recounts one of Mr. Knight's experiments which led him to presume that they owe the peculiar direction of their roots and branches entirely to this force. We refer to Davy's Second Agricultural Lecture for the following particulars:—

Mr. Knight "fixed some seeds of the garden-bean on the circumference of a wheel, which in one instance was placed vertically, and in the other horizontally, and made to revolve by means of another wheel worked by water, in such a manner, that the number of the revolutions could be regulated; the beans were upplied with moisture, and were placed under circumstances favourable to germination. The beans all grew, notwithstanding the violence of the revolution, which was sometimes as much as 250 revolutions a minute on the vertical wheel—which always revolved rapidly—and with little variation of velocity; the radicles, or roots, pointed precisely in the direction of *radii* in whatever direction they were placed. The germs took precisely the opposite direction, and pointed to the centre of the wheel, where they soon met each other. Upon the horizontal wheel the conflicting operation of gravitation and centrifugal force, occasioned the germs to form a cone more or less obtuse, according to the velocity of the wheel, the radicles always taking a course diametrically opposite to that taken by the germs, and, consequently, pointing as much below as the germs pointed above the plane of the wheel's motion."

Mr. Knight, by this ingenious experiment, failed to prove the agency of gravitation, for, to say nothing of the effects of mere mechanical force upon the germinating beans, by a velocity so great, he overlooked the presence of excited electricity. The attempt, at best, was very artificial, and would tend to no natural conclusions; but as to *gravitation* in the abstract, what is it? and what does the term express? A body gravitates, when it falls to the earth; but when we consider that the earth is a globe, and that all bodies above its surface fall towards that surface, and therefore at every angle converging towards a central point which the globular figure admits of, it becomes plain that the act which we call descent, or falling, must be produced by attraction; and thus we are inevitably led to the exciting cause, the *light of the sun*, which by its beams electrifies or magnetizes all the revolving worlds belonging to its system, and renders them mutually co-attractive.

Thus, also, we interpret the phenomena of vegetable developments, as the direct solar light appears to effect the induction of those electrical currents which regulate the flow of the sap, the laboration of the proper juice and compound secretions, and the separation and fixation of the colouring principle.

Colour is the ornamental dress of the vegetable kingdom.—Whence is it derived—what its source? We know that in the dark some plants acquire rich and deep tints: thus, the red giant Rhubarb, if placed in a warmish, close cellar, developes leaves, the stalks being of a most brilliant crimson, while the plate is of a rich lemon-colour. In the light, growing naturally, the stalk would be a dark ochreous red, and the leaf-plate a full green. Light therefore, influences, by inducing chemical action in peculiar juices.

The solar ray is decomposable into four defined colours, and into three degrees of blue. By combination, these tints may be rendered productive of every shade of colour. It becomes, therefore, an inquiry of lively interest whether each ray fixes or deposits its own simple tints, or whether it acts electro-chemically upon

certain fluids, which are destined to be the colouring media. In the absence o
proof, we may still appeal to a few facts adduced by several authorities.

Influence upon leaves—developing Chlorophyll.—It frequently happens in America that clouds and rain obscure the atmosphere for several days together, and that, during this time, buds of entire forests expand themselves into leaves. "These leaves assume a pallid hue, till the Sun appears, when, within the short period of six hours of a clear sky and bright sun, their colour is changed to a beautiful green."

In Silliman's Journal, a circumstance of this kind is recorded, whereby it appears that in six hours the tinting of several miles of a forest went through al the grades, from that of a greenish-white to full spring verdure.

Every gardener is conversant with the variations of colour which flowers assume under artificial treatment: thus, *Andrómeda polifolia*, and *Kalmia latifolia* are purple or pink when growing in the open air, but become nearly white when made to flower under glass. Now, it is not the heat altogether that influences the flower, but light, modified by passing through glass. Hence, we should study the effects of all those degrees of heat in which any tender or half-hardy plant *can* thrive, and adapt them to the actual volume of clear sunlight, because a heated atmosphere is not a substitute,—or, at least, a very defective one—for the clear ray, inasmuch as it (heat) produces no chemical effect upon the fluids of either lea or flower.

Light acts beneficially upon the upper surface of the leaves, and hence great caution is indicated in allowing space sufficient for full play and action; it also promotes the transpiration of superfluous moisture and gases; and these appear tc transude chiefly through the stomates of the under surfaces.

We begin to acquire fresh evidence of electric action in the new experiments upon corn-growing when exposed to the agency of electric circuits. All nature, air, water, earth, are replete with masked light, and this can be derived only from the Sun: if then it become a well established fact, that the growth of plants can be doubly stimulated by electricity derived from the atmosphere, we establish that most important point—the electrizing principle of the Sun's rays. In a few months we hope to collect, and be enabled to adduce, facts in proof of the theory thus cursorily hinted at.

HYPERICUM CALYCINUM, FOR SHRUBBERIES, &c.

There is no part of an extensive garden—nor indeed of a small one—however remote its position, or however insignificant a feature it may form of the whole, that can properly be deemed unworthy of some attention and exertion to invest it with an ornamental appearance. The rudest and most uncultivated portions require, in fact, as much skill and consideration in their adornment as the most finished and elaborate parterre; and it is in the selection and chaste fitting o bjects appropriate to these parts, that the taste of the manager is most aptly isplayed. There is a medium to hit upon between a redundant puerile piling f frivolous and misplaced ornament, and an aspect betraying slovenliness and eglect.

By carefully keeping in mind that those things which have hitherto sufficed re not always the best state of things that it is possible to produce by an attentive bservation, encouraging inquiry after fresh means of improvement, and a cautious xecution, a gradual advancement will be still going on, and the least interesting ook in time will be clothed with something to allure the eye and excite dmiration.

Perhaps there are few spots in pleasure-grounds generally, upon which these bservations are more suited to bear, than the line where the ruggedness of the rove or plantation and the smoothness of the lawn meet together. A connecting ink is often wanting. There needs something as an undergrowth to shed verdancy eneath the trees where grass will only grow partially, and few other plants can xist. There needs something to lead the eye more gradually and imperceptibly rom the one to the other. The nakedness of these places, moreover, is a defect which must have been observed by every one, since we rarely meet with a leasure-ground that is entirely exempt from it.

Some time ago the capacity which ivy possesses of flourishing beneath the hade and drip of trees, and its consequent adaptability as a carpeting for plantations instead of grass, was made the subject of comment in the pages of a former volume. Without seeking to detract from the merits of ivy for that purpose, we now bring another plant under review, which, from its commonness, must be lmost as familiar to most of our readers—the *Hypericum calycinum*, or large flowering St. John's Wort.

The main point which we here seek to enforce, is not so much its utility as a general covering, as was proposed, and has in some places been successfully adopted with ivy, but its applicability for planting in broad masses near the outskirts of plantations and shrubberies, and in the vicinity of the principal walks passing through them. It is by no means a novel proposition, but it is one deserving of a far more extensive adoption than it receives. We have seen it admirably exemplified in several instances, especially and on a large scale at the Deepdene, near Dorking. The plant rarely grows much above a foot high, and has a handsome appearance, being furnished with ample evergreen foliage and large yellow flowers, which are copiously produced for the greater part of summer and autumn, and contribute a considerable amount of show. The density of a mass once planted will be continuously increased by the vast number of suckers, which are constantly pushing from the root. From this rapid and easy source of extension, there can be little trouble or expense incurred in obtaining a sufficient number of plants, and there is no risk of losing them with the most ordinary attention in planting. When they are intended to grow under trees, it is, however, advisable to plant in autumn, in order that the soil may get well washed to the roots, before the leave cover the trees in spring ; but in other situations there is scarcely a hazard at an season.

Another recommendation to the plant is its ability to exist and flourish i almost any kind of soil and situation. In gravelly places, where the generality o other plants can hardly derive a sufficiency of nourishment to maintain a health growth, and a very large number will not even live, it will thrive and sprea vigorously; and it exhibits little repugnance to the most adhesive clay. A bush and somewhat shady spot is most consonant with its habits, but it is not difficul to manage in exposed sunny places; indeed, few plants are more accommodating.

Where the walks through shrubberies and plantations are diversified wit natural banks, artificial slopes, or rocky places, this *Hypericum* will be found a exceedingly appropriate ornament. It should, however, be planted in extende patches, and not scattered here and there in small isolated groups. It i frequently a difficult matter to find plants otherwise suitable that will exist o steep, gravelly banks, where it is impossible to fix any large quantity of soil s long as they remain naked. For such places this shrub is admirably suited, an when the bank is once covered, should the plants not grow with a satisfactor vigour, a small quantity of soil or decaying leaves may be thrown in amongs them from time to time. This will prove of great assistance, and the number o stems will prevent it from falling or being washed to the bottom, as woul invariably occur with a steep *naked* bank. But any aid of this kind will b almost rendered unnecessary when they are overhung with trees, by the fallin leaves becoming entangled with their shoots, and settling down and rotting abou their roots, and eventually acting as a manure.

Besides these situations, it will be found an excellent plant for covering ope spaces amongst rockwork extending into a plantation, or similar places runnin down to the margin of an artificial lake. In such places, amongst rocks (but n doubt planted), we have seen it in considerable quantities in the vicinity of some of our northern lakes, where its large yellow blossoms have a gay appearance.

CONSERVATIVE WALL AT CHATSWORTH.

The following list, which is furnished at the request of a subscriber, enumerates some of the more conspicuous plants which are found to succeed well on the Conservative Wall at Chatsworth. There are many others of less import, which it is not considered necessary to insert in this list ; it being offered more for those who may wish to possess a select than an extensive collection of such plants. Again there are others, which, although they grow well in this situation, and flower in great perfection during the summer and autumn months, are too fugitive to be admitted to the catalogue. They however should not be discarded, as they are found most seful decoratives, and are planted at Chatsworth in the spring to fill up any acancies or naked portions at the bottom of the wall, and are so arranged as to roduce a good contrast when in flower with the permanent plants; and thus a laze of flowers is kept up from the top to the bottom of the wall during the whole ummer and autumn. These latter consist of Salvias, Tropæolums, Petunias, Iaurandya, &c.

The notes attached to some of the plants enumerated in the list will show how uxuriantly they grow, and what magnificent specimens they have attained to; rom which circumstance it may be inferred how truly beautiful they are when in ower, the blossoms being produced in many instances in the most gorgeous prousion, literally hiding the foliage and stems of the plants which bear them.

A list of plants is added, which are intended to be planted against this wall, nd which it is presumed should share a place in the most select arrangement of his kind; most of them being species of sterling worth and beauty, and therefore ve recommend a trial of them by all who possess the luxury of a Conservative Vall.

PLANTS ON THE CONSERVATIVE WALL AT CHATSWORTH, Feb. 1845.

CACIA DECURRENS . .	This is a magnificent plant, with handsome foliage, occupying half of a panel.
——— LANCEOLATA.	
——— ANGUSTIFOLIA.	
BUTILON STRIATUM - .	A fine plant, blooming profusely: it should be well pruned in spring.
RUGMANSIA SANGUINEA .	Scarcely anything can exceed the beauty of this plant when in bloom. It covers the wall from bottom to top for a breadth of nearly twelve feet, and flowers for many months in summer and autumn.
RACHYSEMA UNDULATUM.	
ILLARDIERA LONGIFLORA .	A handsome climber, producing abundance of flowers, and a pretty blue berry.
IGNONIA CAPREOLATA . .	A fine species of this splendid genus, with scarlet flowers, which are borne in great profusion. It is a large plant.
EANOTHUS AZUREUS . .	A pretty shrub, with azure blue flowers.
LEMATIS SIEBOLDI . .	These are most beautiful climbers, and although tolerably hardy should not be omitted from the Conservative wall, where they flower in higher perfection, and considerably earlier than where exposed.
——— AZUREA GRANDIFLORA	
IPLACUS PUNICEUS.	
RYTHRINA CRISTA-GALLI.	
DWARDSIA MICROPHYLLA.	
——— GRANDIFLORA .	This has attained a large size, and flowers profusely.
REVILLEA ROSMARINIFOLIA.	
IIBBERTIA VOLUBILIS . .	A fine twiner and free bloomer.
ASMINUM GRANDIFLORUM.	
——— UMBELLATUM.	
INUM TRIGYNUM.	
IALVA CREEANA.	

MANETTIA BICOLOR.	
OLEA FRAGRANS.	
PUNICA GRANATUM.	
PLUMBAGO CAPENSIS . .	A lovely plant, with pale azure blue flowers.
PASSIFLORA MAYANA . .	
——— CÆRULEA . .	These produce abundance of bloom, and the latter of frui also.
——— RACEMOSA	
——— ALATA . .	
POLYGALA GRANDIFLORA . .	This is a pretty old greenhouse plant, and has attained a larg size, with plenty of flowers.
SCHINUS MOLLE.	
SWAINSONA CORONILLÆFOLIA.	
SIPHOCAMPYLLUS BICOLOR.	
RHODOCHITON VOLUBILE . .	A fine climber—flowers abundantly all summer.
CAMELLIA JAPONICA . .	In variety.

LIST OF PLANTS RECOMMENDED, IN ADDITION, FOR CONSERVATIVE WALLS

LAGERSTRŒMIA INDICA.
CERATONIA SILIQUA.
BUDDLEYA LINDLEYANA.
TACSONIA PINNATISTIPULA.
——— MOLLISSIMA.
MIMOSA PROSTRATA.
ACACIA LONGISSIMA.
——— CULTRIFORMIS.
——— DEALBATA.
——— JUNIPERINA.
——— ARMATA.
——— LUNATA.
——— MUCRONATA.
BRUGMANSIA SUAVEOLENS.
BIGNONIA GRANDIFLORA.
——— TWEEDIANA.
POLYGALA CORDIFOLIA.
CORREA HARRISII.
——— LINDLEYANA.
——— PULCHELLA.
——— BICOLOR.
SOLLYA LINIARIS.
——— HETEROPHYLLA.
EUTAXIA MYRTIFOLIA.
BRACHYSEMA HYBRIDUM.
KENNEDYA OVATA.
——— LONGIRACEMOSA.
——— LILACINA.
MARIANTHUS CÆRULEO-PUNCTATUS.
BOSSIÆA LINIFOLIA.
——— SCOLOPENDRIUM.

HINTS ON THE MANAGEMENT OF A FEW ORNAMENTAL PLANTS.

RAPID as the advance of late years has been in the knowledge and appreciatio of scientific principles in the culture of flowers, there is still a seeming reluctanc in a great many instances, to enforce their application. And perhaps this is in great measure attributable to the comprehensive nature of the considerations tha are involved in the application of theoretical systems to attain practical ends wit any degree of certainty and benefit. Ignorance of the nature of particular specie or classes of plants, and of the varying character of the conditions in which the are respectively met with in a wild state, present a formidable barrier to those wh have had little practical experience or opportunity for observation. All firs principles are necessarily too general, and the peculiarities of plants too diversifie o admit of a very extensive application without considerable modification to adapt hem to the requirements of each. Thus, light is universally recognised as an ssential agent to the well-being of a plant; but the degree of light beneficial to ifferent species, or even which they can bear with impunity, varies as greatly as heir respective botanical characters or general aspect. The same is true of other gencies; and on this account, therefore, directions for the management of articular species, or families corresponding in habits, will always be desirable. he detail of different plans of treatment, will likewise furnish a means of creating dditional variety in the several stations for which each is respectively fitted.

Considerable interest being at the present time manifested with regard to the *uanullòa parasítica*, so long cultivated in gardens as *Brugmánsia floribúnda*, we re induced to pen a few observations upon it, assured that in so doing we shall be omplying with the desire of many of our subscribers.

With the knowledge of the primitive name, we gain some facts relative to its atural habits and climate, which may possibly be turned to advantage in its ultivation. It is described by Ruiz and Pavon, its original discoverers, as parasitical plant growing on the trunks of trees in forests, and assuming a endent direction. Coupling this fact, then, with the prevalence of a clouded tmosphere in Peru, we have at once the best evidence for assuming shade to be a ecessary condition to ensure success in its management. Effectual drainage, and o be effectual it must be extensive, so that the roots may never be surrounded by n excess of moisture, is another axiom plainly established by the natural situation eing upon trees.

But even to set aside these inductions, as derived from the natural circumtances which attend the plant in a wild state, the conclusions drawn from epeated practice and observation come in support of the same theory; and we an have no hesitation in affirming that the frequent failures in its cultivation may enerally be traced to the neglect of one or other of these conditions. We do not, owever, mean to assert that success is solely and exclusively dependent on them, or the health of plants must ever be influenced by a variety of causes.

To carry out these hints, instead of using a loamy and retentive soil, one of a more open character and more permeable to fluids should be chosen. That degree f humidity in the soil most beneficial to this, and indeed to a very large number f all cultivated plants, is that which merely *moistens* all the particles, without roducing saturation; and this condition will be best preserved by a looser rrangement, and materials of a coarse mechanical texture. The *Juanulloa* thrives dmirably in a mixture of rough pieces of rotten wood and decayed leaves; and rom the fact of the plant locating upon trees in its native state, we may safely onclude that this is the natural medium for its roots.

A degree of bottom-heat to the roots is another important point, and effects a most astonishing improvement in the growth and flowering; and more especially when the plants are provided with it from the earliest stage of their existence, for when they have once become diseased and unhealthful through the want of this or other proper appliances, they are commonly a long time in regaining a flourishing aspect. Indeed, it generally proves more satisfactory in the end, at once to set about rearing young specimens, than to attempt the renovation of an old mismanaged one; and it is likewise of equal moment to select the most promising shoots for cuttings.

Beyond this we have little to add, except that a moist atmosphere is indispensable to enable it to grow in a luxuriant way, and produce fine clusters of blossoms. With this and the foregoing facts in mind, then, we cannot but conclude that an orchidaceous house is the most suitable place to grow it in; and as there is something remarkable, and dissimilar from ordinary stove-plants, in its general figure, it is not an unworthy companion for the *Æschynanthus* and some of the *Columnea* species, which are commonly associated with Orchidaceæ. We are fully persuaded that a greenhouse is unsuited to the *Juanulloa*, and where the acme of cultural excellence is striven for, it will be necessary to furnish a greater degree of heat and of moisture.

From this plant, which can only be had in perfection by those who have all the advantages of warm stoves, we pass to one of still more recent introduction, but already equally popular, both on account of its excellent appearance, and its ability to flourish in a lower temperature. The plant to which we refer is one of the most showy which New Zealand has furnished to our gardens—the *Veronica speciòsa*, imported a year or two ago by Messrs. Knight and Perry, of Chelsea. The vast facilities for propagation possessed by this plant, both by seed and by cuttings, has already permitted it an extensive circulation, which we have no doubt will be greatly increased, when its value as an ornamental species becomes more widely known. It has naturally a bushy and vigorous character, and large and somewhat succulent leaves of a fine glossy green. The beautiful spikes of flower are usually much superior in magnitude to any of the published figures of it, and are occasionally branched at the base. In addition to this, the species may be had in bloom for seven or eight months in the year, and it is highly probable that it may ultimately be found to flower at all seasons. Those who saw the beautiful specimen exhibited at the Chiswick Gardens last summer, by Mr. Ingram, of the Royal Gardens, Windsor, will be able to form a pretty correct idea of its capabilities.

The plant just alluded to had been grown in an intermediate house; but although, by the application of a little extra heat, the period of flowering is capable of being considerably hastened, a high temperature is not by any means essential to the general welfare or plenteous blooming of the species. A common frame is quite sufficient protection for it in winter, and we have even had it exposed to two or three degrees of frost for several successive days without any visible injury, although the plant was in a free growing state at the time. In the summer season it is quite at home in the open air, and grows luxuriantly in the borders.

How far it may be useful to turn *young* plants into the flower-beds in summer, appears to be questionable. We have never yet seen specimens bloom till they had acquired considerable size. But even though they do not flower, they may be planted in the same bed with free-flowering plants that are deficient in foliage; and if kept low, they will form an excellent verdant covering. The great space which large plants require during winter, is a matter of some moment in most collections, and must prevent such from being extensively used for the parterre. There can be no doubt, however, that the large plants which have adorned the greenhouse during the previous summer and winter may be planted out with advantage, and their place replenished with younger specimens. Three or four of these large plants may be made to extend over a moderately capacious bed, by carefully bending down and fastening the shoots to the ground with hooked pegs—a plan which is of further benefit in conferring a more dwarf appearance, and promoting the development of side growth; and the same method, though in a more limited extent, is useful with plants intended to remain in pots. When an inclination is manifested to run up with only one or two stems, instead of applying the usual corrective of pruning, it is preferable to divert the current of sap into the side buds, by bending the shoots downwards; and any degree of bushiness that may be thought desirable is easily obtained, by resorting to this expedient from time to time as the plant proceeds in growth. The utility of the practice is exhibited in an earlier bloom than would have been produced, had each bud been shortened every time an increase of shoots became necessary to maintain the symmetry of the bush; and the flexures thus formed in the branches will always be sufficiently obscured by the quantity of foliage.

Being of a succulent nature (though capable of enduring a great degree of humidity at the roots), much water is not essential to it, and only tends to retard the disclosure of bloom; and as the unrestricted extension of roots, when transplanted into the borders, has a similar tendency, the selection of a shallow soil in a dry and well-drained situation is a highly politic measure; and if possible, it should be a place well favoured with sunshine.

We have yet another feature to point to, and that is, the facility which attends its management as a window plant for the cottager. In this respect it is almost unrivalled; for, with a trifling amount of care, it will retain the beautiful green of its leaves, even in the smoky atmosphere of the metropolis. In such a station it is imperative to supply water to the roots during winter with a very niggardly hand, and to check as much as possible the propensity which the plant usually displays to elongate its branches; and the sponge must also be frequently employed to keep the leaves clear of dust and dirt.

A remarkable fact in connection with vegetable colours, and one which the culturist may apply to a practical advantage, is that displayed by several greenhouse plants—and which we have especially observed in some of those with flowers varying from an orange-red to scarlet—of acquiring a deeper and more brilliant tint when exposed to the weather without the intervention of glass. An instanc of this which must be familiar to many of our readers, is exhibited in the *Aquilegi Skinneri*, a native of Guatemala, which though a hardy plant or nearly so in th southern counties, must be regarded as a greenhouse species in the northern an elevated midland districts. The same tendency to acquire brilliancy in the ope air is also witnessed in the common scarlet *Verbena*, in the *Lychnis Bungeana* an *L. coronata*, in several of the Zichyas, and other New Holland Leguminosæ, i the *Cuphea strigulosa* recently figured, and by several other plants in a more o less conspicuous degree, amongst which, flowers of other hues might also b adduced. It is not, however, an unvarying rule with all plants; for results exactl the converse are daily witnessed, probably in a large measure produced by th induction of too much aqueous fluid into the system. But this is not the place t enter into any abstruse speculations—we are now dealing with facts; and to shov the relation of these premises to practical purposes, we have yet to bring forwar a still more obvious instance, than any of those just advanced. We allude to th *Brugmansia sanguinea* (or *B. bicolor*, as it is sometimes called), when planted ou of doors.

The deficiency of colour, together with the inveterate attacks of the red-spide and thrip on the leaves of this plant when grown in stoves or greenhouses, hav almost accomplished its exclusion from collections. In a few instances, we mee with plants in the open air, but these are by no means so frequent as the orna mental capabilities of the species are entitled to. In a dry, sheltered, sunny plac on a lawn, it grows vigorously and expands flowers abundantly, but in such situ ations, unless very carefully protected, it will be destroyed in an ordinarily sever winter.

At Chatsworth, we have grown it for several years trained against th "conservative wall," where its long, trumpet-formed flowers constitute a trul splendid feature throughout the latter part of summer, and notwithstanding th usual severity of the seasons in Derbyshire—continuing till near the close of th year; and it is remarkable, that the depth and brilliancy of the colours increase a the autumn advances. During the months of August, October, and in milde seasons December, they are most abundant, presenting almost an unbroken mas of inflorescence. The number of flowers disclosed on one plant at the same time in each of these months, exceeds an average of two hundred.

Little attention is required beyond occasional syringing in dry weather, an thinning out the superfluity of young shoots, in summer. Independent of othe benefits conferred by these operations, they are both essential to the perfect sub jugation of insects. When the young growths are left in a too crowded state, the become completely covered with green-fly and the leaves are constantly falling off and unless they are syringed during the continuance of a dry atmosphere, they ar apt, even in the open air, to be overrun with the red-spider. Thinning out th summer growths is further beneficial in increasing the size of the blossoms and th eat appearance of the trees, and the flowering period is likewise prolonged by it. n fact the trees should be managed with the same regularity that would be practsed in the summer management of a peach-tree, always pinching out the buds hat are not wanted, before they have grown more than an inch or two in length. But although they should be left equally over the whole tree, they must not be *ormally trained.* On the contrary, they should be allowed to project a short istance from the wall, tying them back whenever they exceed a safe or tidy limit. At the approach of spring, all the branches will need spur-pruning to keep them rom straggling far from the wall, and clogging the plant with an accumulation of ld wood, that serves no other purpose than as a harbour for insects.

The mode of affording protection in winter is by covering the roots with dry ern, and drawing before the branches a tightly stretched curtain of strong canvas, which being attached at the top to a temporary projecting coping, and secured to a rame at the bottom, encloses an area of warmer air around them. For the most part, the curtain may be drawn back for a few hours in the middle of the day; and in mild weather it should not even be closed during the night. Of course, it s necessary to have a border sufficiently well drained to prevent the soil from becoming overcharged with water. By a similar proceeding, many greenhouse plants will acquire a considerable improvement on the character they present when grown in a greenhouse; and the coping, curtains, and every vestige of protection, may be entirely removed in summer.

FLORICULTURAL NOTICES.

NEW OR BEAUTIFUL PLANTS FIGURED IN THE LEADING BOTANICAL PERIODICALS FOR MARCH.

ANGRÆ'CUM DI'STICHUM. This is not a very showy plant, nor yet very new, having been in he possession of the Messrs. Loddiges, of Hackney, for twelve or thirteen years, but it is nevertheless a plant full of interest, whether we regard the form and arrangement of the foliage, or the structure of its minute pellucid blossoms. It consists of a tuft of stems a few inches long, occasionally branching, and furnished from the base to the point with closely set, oblong-falcate, distichous leaves of a fleshy texture, from the axils of which the blossoms protrude singly. Diminutive as these flowers are, they are said to be identical in structure with those of the fine *A. eburneum* of Thouars. Speaking of the genus *Angræcum*, Sir William Hooker says, "it is peculiar to the Old World, if we except the *A. filiforme*, a native of Hispaniola, but which will prove to belong to a different genus. It was founded by Du Petit Thouars, and the name derived from a barbarous word, 'Angurek,' of the Malays." The present species was imported from Sierra Leone by the Messrs. Loddiges, who presented specimens to the Royal Botanic Gardens of Kew, where it flowered in October.—*Bot. Mag.*, 4145.

AO'TUS GRACI'LLIMA. A very elegant Swan River species of *Aotus*, introduced to the Royal Gardens of Kew by Mr. James Drummond. "We have also received it," writes the Editor of Curtis's Magazine, "from Baron Hugel, imported from the same country, to which it seems peculiar. Mr. Preiss and Mr. Drummond have both sent dried specimens. Besides its glabrous branches and foliage, it may at once be known from the old *A. villosa* by the very copious flowers, so abundant on the branches as to conceal the leaves of a great portion of the branches: thus its beauty will recommend it to every greenhouse. Only two species were known to Professor De

Candolle, and both natives of Eastern Australia ; now, six others are described in the 'Plan Preissianæ,' as inhabitants of the Swan River settlement." The species here more immediate under notice, is a tall and rather loose-growing heath-like shrub, with slender branches full twigs towards the point of each. The flowers are of a lively yellow colour spotted with red, a spring from the axils of the leaves, very densely arranged, and completely encircling the ste with an unbroken mass for several inches in length. With proper management whilst the pla is young, to render it bushy, the species will make a very attractive shrub. *Bot. Mag.*, 4146.

Calathe'a Villo'sa. "A native of Demerara, whence it was sent by the Chevalier Schon burgk to Messrs. Loddiges, with whom it flowered in July, 1843. It is not possible, in the prese state of the Marantaceous order, to say much about its affinity, without a very careful examinati of all the species to be found in books ; but we presume that it is nearly related to Roscoe *Phrynium Cylindricum.* Its very shaggy leaves and flower-spikes, taken along with tl lengthened cylindrical form of the latter, offer discriminating marks that are not to be mistaken. It has oblong petiolate leaves of considerable size, and the stem extends into a long scape, at tl summit of which is a cylindrical spike of yellow flowers. Before they expand, the flowers a concealed in large greenish bracts. The species needs a high stove temperature, and should l liberally watered whilst it continues in a growing state. Sandy loam and peat is recommende as a suitable soil for it. It is increased by offsets.—*Bot. Reg.*, 14.

Eu'stoma Exalta'tum. This plant is known in botanical works by no less than five othe names besides the present. "It appears" writes Dr. Lindley, "from the researches of D Grisebach, that *Lisianthus Russellianus*, this plant, and another or two like them, constitute peculiar genus which Mr. Bentham called *Urananthus*, but which had been previously name *Eustoma* by the late Professor Don. It is therefore necessary to cancel the common name this plant in favour of that which is now given. Under the designation of *Lisianthus glaucifolii* the species is circulating among gardeners as something new ; but it is, in truth, a specie respectable for its antiquity, having been described years ago by Lamarck, under the name *Lisianthus exaltatus*, and by Jacquin as *L. glaucifolius.* It is the celebrity of *L. Russelliani* that has again brought it into notice." Besides the foregoing synonymes, it has received th names of *Chlora exaltata*, and *Eustoma silenifolium.* "It is a native of various parts of Nort America : the warm parts of Mexico on the coast of the Pacific, Vera Cruz, Tampico, Cuba, S Domingo, the Havannah, and the Arkansas, are all set down as stations from whence it has bee brought." Dr. Lindley suspects that all the plants thus collected may not prove to be the sam species, as the style is considerably longer in specimens from the North of Mexico, than in thos which flowered last summer at the establishment of Mr. Glendinning, at Turnham Green. I point of beauty it is inferior to *E. Russellianum*, having smaller flowers, but is, nevertheless, very pretty and interesting greenhouse plant. It has rather a stiff habit, with glaucous, ellipti oblong leaves, and flowers when not more than a foot high. The seeds "should be sown abou midsummer. The plants will naturally come weak at first, but to retard their flowering till th following season, as well as to strengthen them, they should be stopped at every other joint, unti they have produced a sufficient number of lateral shoots. The soil which seems most suitable i sandy peat. Water and heat should be liberally given during the growing season." It i naturally only of annual duration. *Bot. Reg.*, 13.

Ly'cium fuchsio'ides. "Introduced to the Royal Botanic Gardens of Kew, and raised fron seeds sent by Dr. Jameson, from Azoques, in the Quitinian Andes, where it is used by the native for fences." It appears from dried specimens procured from the same locality, that both frui and flowers are witnessed on one branch at the same time ; the former, of course, appearing o the lower part from the flowers of the previous season, and the latter adorning the more extrem portion. A good representation is given in the 'Plantæ Æquinoctiales,' from specimens obtained at neighbouring stations—the somewhat cold, elevated region near Delay, Cumbe, and Cuenca, i the province of Quito ; but the intermediate lesser teeth of the limb of the corolla are omitted which, indeed, are not easily seen in the dried specimens ; and the fruit is given as a smal globose berry. In the Nov. Gen. Amer., however, the berry of the same plant is, on th authority of Humboldt, described as 'ovate;' so that I cannot doubt," adds Sir W. Hooker, "o our plant being identical with it." This species of Box-thorn is one of the unarmed section, and is a handsome showy plant, everywhere perfectly smooth, and well furnished with blunt leaves proaching an oval form. The flowers, of which several appear together at the axil of the leaves, e supported singly on peduncles of nearly their own length ; the corolla is a lengthened tube, reading a little at the top, of an orange scarlet colour. In the Kew Gardens it grows about five et high, and continues flowering for a good part of the summer. It needs a warm greenhouse. *ot. Mag.*, 4149.

OPERATIONS FOR APRIL.

It is a natural thing to feel pleasure in any circumstance that awakens within us a sense of e returning kindliness of summer, and an early spring is consequently rapturously hailed by any. But how often, nevertheless, have a few short days of mild and genial weather been cceeded by a severity and inclemency that speedily blasted the expectations of the too sanguine ! xperience teaches that a premature warmth at this season is, in fact, to be regarded with a ost suspicious cautiousness, particularly in the northern and inland localities ; and the observing lturist of tender flowers soon learns that a precocious heat and moisture is more frequently ike an enemy to his ease and his efforts, than a matter of gratulation and delight.

We throw out this introductory caution to awaken those who are too apt to be lulled into rgetfulness of the past, and suffer themselves to be deceived by the fair promises of the present ur, to a recollection of the sudden and sometimes severe frosts which rarely fail to visit us in me part of this month, and occasionally in May ; and which are then proportionately destructive the degree of previous excitement to grow, which the more delicate plants in the open air have stained. Should the severe frost experienced in March, be succeeded by a mild, showery pril, there must be no hurry to plant out tender things, or to dispense with the pro- ctions of winter. Shelter is, in truth, never more plainly indispensable to success than uring spring frosts, which succeed an unseasonable mildness. Indeed, it is a fact which we lieve none will be temerarious enough to gainsay, that plants which actually needed no otection whatever during the depth of a winter's cold, become invested with a tenderness by e fickleness of our climate in spring, that renders them susceptible of damage from what are parently very insignificant subsequent depressions of temperature. Therefore, we reiterate e advice not to be rash and premature in removing the emblems of winter.

We must not, however, be misunderstood. We do not recommend plants to be cased up uring fine weather, nor yet that the materials with which they are protected should be left aring in conspicuous places, when there is a conveniency near enough at hand for concealing em, without materially affecting the needful dispatch in their reapplication on a succeeding ergency. Every thing should be done to create and continue neatness, that can be done ithout endangering the success of the plant in its after progress. Neither do we include in the regoing directions a recommendation to keep those plants in pits and frames, intended for the ower-garden, in a close confined atmosphere. Besides mere protection from frost, however, it essential that these be kept growing somewhat freely ; but it will now also be equally necessary prepare them for the open ground by a gradual inurement to a more exposed condition. The edium to be hit upon, is to manage this without starving and weakening them. If they are ept too close and warm, they will become too sensitive to cold to admit of removal to the open ir without danger, till a late period ; and if they are subjected to a temperature very much epressed, or exposed to keen winds, vegetation will be paralysed, and it will be long before the lants effectually recover. Turf-pits carefully covered at night, and protected also in the day- me on the windy side, and from cold showers, afford a suitable shelter for many of the robust ecies, if ordinary precautions are observed in their construction, against damp. The employ- ent of a number of these at this season will likewise make room in other receptacles for roviding a more ample stock of plants, both for the parterre and show-houses in summer.

To assist the plants in acquiring vigour previous to being transplanted to the flower-garden, it a profitable plan to repot those free-growing kinds that have filled their pots with roots, and egin to be cramped for want of space to extend further. With Calceolarias and similar things, is is indispensable to ensure fine display ; many of the plants which are neglected being liable die from the decay of roots which ensues from confining them, and all suffering harm from the ant of a suitable material to push new roots amongst.

It is now fully time to hasten the completion of all ground-work still in progress. Th accumulating weight of unavoidable operations in maintaining and providing for the attractivenes of the grounds and houses, will require the full attention of the culturist to superintend and hav executed at the appropriate time. And, besides, the confusion which is created by leaving thes unfinished till a late period, they are commonly an eyesore in the scene throughout the season Whatever turf remains to be laid down should be done at once, that it may acquire a verdurou face before the heats of summer. Walks should now be turned, and additional gravel supplie wherever it may be wanted, in order to impart a fresh appearance, and get rid of the moss an weeds that usually abound on the surface. This is a work often passed over as unnecessary, an in some degree it may be so where the gravel is of an extremely firm-binding nature ; but i other cases it will eventually prove a great saving of labour, owing to the comparatively littl trouble that will be required to destroy the weeds during summer. It will be necessary to hav them well and frequently rolled for some time after, with a rather heavy roller ; and this will b most effectively performed in showery weather. Similar opportunities should also be seized upo for rolling the lawns ; it will add much to their good appearance, and the benefit will be full appreciated when it becomes necessary to use the scythe. In fine weather, any preparation needed in the flower-beds, for the reception of plants next month, may be proceeded with.

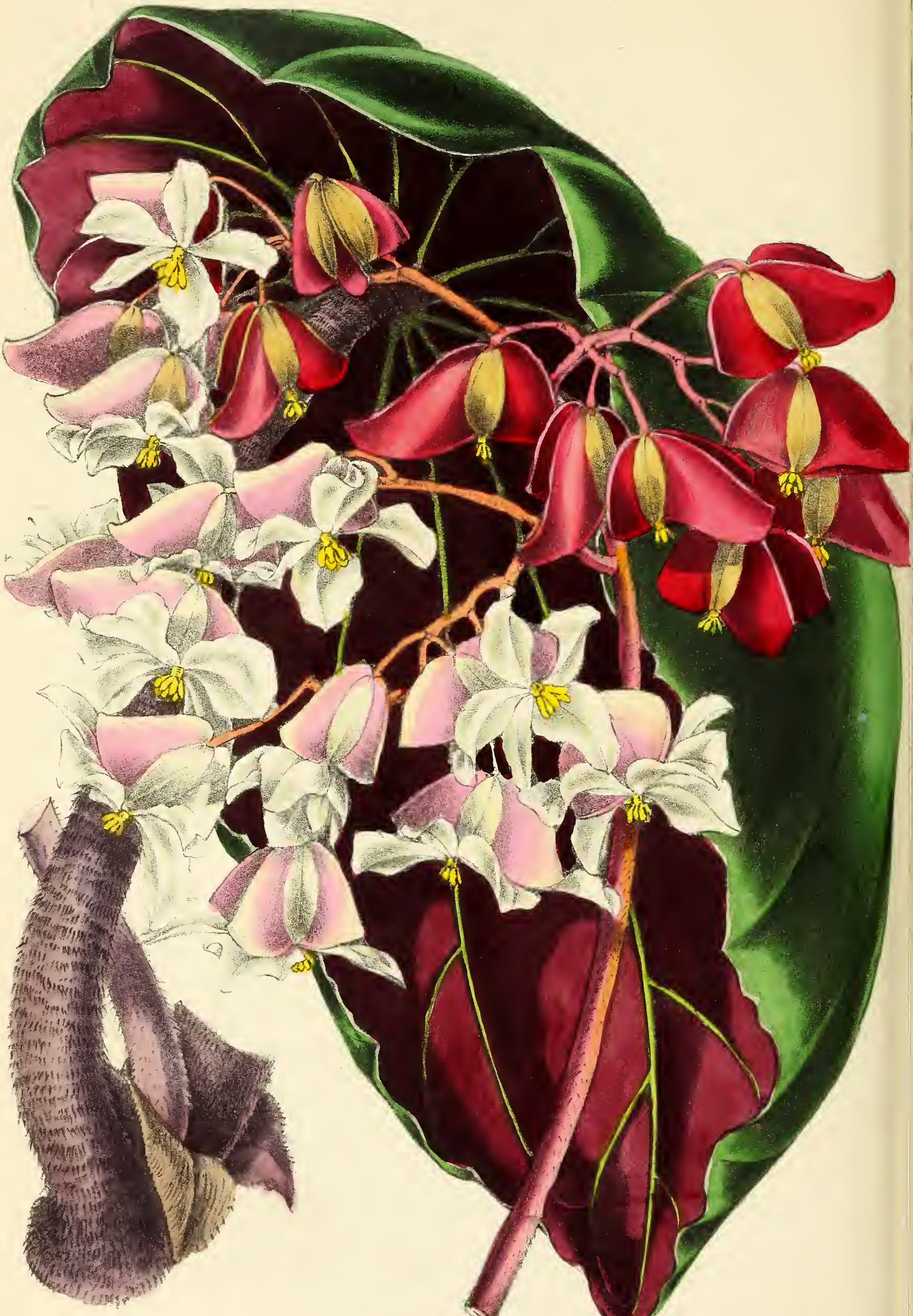
Amongst stove and greenhouse plants this month will be a season of great activity, and if th needful conditions are furnished, of vigorous development. Now is the time to supply a increased bottom heat ; and for those who are yet sceptical, to test the utility of the principle It must, however, be remembered that, a proportionate increase is at the same time necessar both in the heat and humidity of the atmosphere ; and the degree of warmth supplied to th roots should also be *nearly the same* as that maintained in the air, for a wide variation on *eithe* hand would be alike disastrous. A copious quantity of moisture will be required in the atmosphere to induce a healthy growth, and frequent syringing may now be indulged in. This wil not only be a great means of keeping down insects, and preserving the leaves free from dust an dirt, and capable of performing these functions perfectly, but will also supply them with no inconsiderable amount of nourishment. The occasional fierceness of the sun, moreover, should b softened by interposing a thin screen. But little air is necessary to the stove at this season except occasionally for the purpose of lowering the temperature. By more strictly followin these directions than is frequently done, there will be a good prospect of obtaining mature wood and a consequent copious inflorescence ; and when in conjunction with other particulars latel furnished, we hope to see a more profuse bloom on many of the yet almost sterile species o climbers.

The same observations will apply to the orchidaceous houses, without other modification tha a somewhat more plentiful moisture. A few specimens of *Achimenes*, *Æschynanthes*, *Epiphyllum truncatum*, &c., planted in baskets amongst moderately loose materials, may be suspende here. Be careful that no water finds its way through the roof to drip upon the tender youn growths.

The greenhouse should be kept closer than those structures usually are, and especially when cold wind prevails. Nothing is more injurious now, whilst the shoots are young and soft, than rush of cold air. Give the plants room to grow without their shoots becoming entangled with on another, and keep the pots clear of the weeds, which will now be making their appearance plentifully in the new soil. Be very particular not to use water at a lower temperature than that o the house ; and, if possible, let it be exposed to the sun, to further oxygenation.

Should the weather prove favourable, a portion of the early part of the month should be employed in committing to the ground seeds of hardy shrubs, perennials, and annuals, and in preparing slight hot-beds for those that require a little warmth. Seeds of greenhouse and stove plant should also be sown in pots without delay, and furnished with a gentle bottom heat.

Chrysanthemum suckers should be potted off, and protected from frosty winds and cold rain in a turf pit with canvas covering. Dahlias should be encouraged. Cuttings of the *Hydrange* may be planted in peat and small charcoal—many will thus produce blue flowers. Rose-tree which have been allowed to grow a few inches may be pruned to below where the buds hav pushed, to flower late. All climbers not already attended to, should be pruned and regulated Where a showy flower-garden in spring is prized, Mr. Edmonds' method of employing Pansies (described last year) may now be adopted.



S. Holden del. & Lith.

Begonia ramentacea.

BEGONIA RAMENTÀCEA.

(Scaly Elephant's-ear.)

Class.	*Natural Order.*	*Order.*
MONŒCIA.	BEGONIÀCEÆ.	POLYANDRIA.

Generic Character.—*Male flowers—Calyx* wanting. *Corolla* polypetalous; petals commonly four, unequal. *Female flowers—Calyx* wanting. *Corolla* with from our to nine petals, generally unequal. *Styles* three, bifid. *Capsule* triquetrous, winged, three-celled, many-seeded.

Specific Character.—*Plant* an evergreen perennial. *Stem* short, thick, short-jointed, somewhat tortuous. *Leaves* obliquely ovate, with a short acumen, many-nerved, entire, bright green and smooth above; beneath sanguineous, and studded over with numerous fascicles of setæ. *Petiole* as long as the leaf, or nearly so, tapering upwards, covered with fringed depressed scales. *Stipulæ* ovate, concave, dry and membranous at the margin; exterior surface beset with setæ. *Peduncles* longer than the petiole, clothed with similar scales. *Flowers* pale blush. *Capsule* sanguineous.

The genus *Begonia* appears to have been established by Linnæus, and commemorates a French patron of Botany, M. Michael Begon. The species are common to both the Old and New World; but by far the larger number of those already discovered belong to the latter, and, amongst them, the handsome and somewhat singular species before us, which was imported some years ago from Brazil, to the nursery of Messrs. Young at Epsom. A specimen which flowered here in 1840 furnished the subject of our representation.

Since then, specimens which have flowered at different Nursery establishments in the vicinity of London, and especially one exhibited at a meeting of the Horticultural Society last November, by Mr. Jackson of Kingston, have fully confirmed its worth as an ornamental species. It is decidedly one of the finest of its class; but, as it only admits of a limited propagation, it is far from being a common plant.

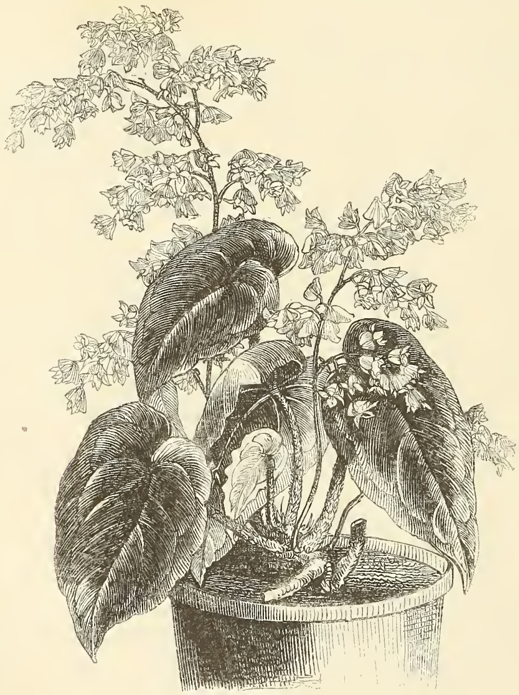
Perhaps its nearest ally is the *B. Barkerii.* That species, however, is ufficiently distinguished by its coarser habit, less numerous scales, and the absence of the fine sanguineous hue on the under side of the leaf, which adds so much to the beauty of the present. *B. stigmosa*, a species with large dark spots on the leaf, appearing like decayed portions, and *B. heracleifolia*, both assimilate in possessing scaly appendages on the petioles and under surface of their leaves, but dmit of no comparison in point of excellence.

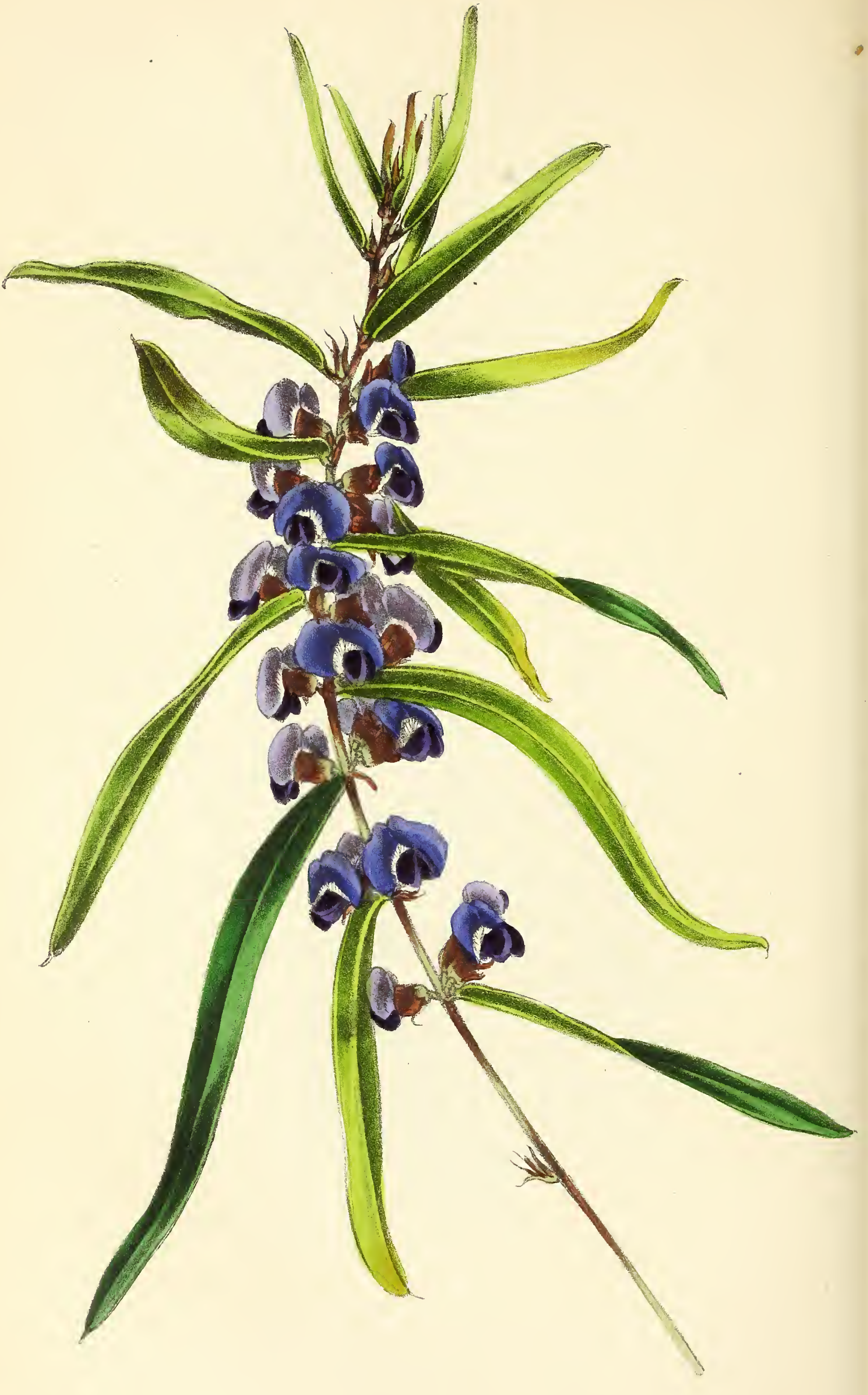
B. ramentacea is a dwarf plant with very close-jointed stems, almost hidden with its beautiful foliage, above which the flower-stalks rise a few inches, and terminate in a spreading cymose cluster of whitish blossoms delicately tinged with blush. As the flowers decay, the large winged seed-vessels assume a rich crimson hue, and are hardly less attractive.

It needs stove treatment, and flourishes in an atmosphere charged with moisture. A somewhat drier station should be given whilst the flowers are open and it needs to be exposed to all the light that can be commanded, to enable the fruit to acquire its glowing colour. During the cessation of growth it may be placed on an airy shelf where it can be kept free from wet, until it displays symptoms of renewed activity. Loam, peat, and sand, grow it favourably. The mode of increase is by offsets which spring from about the base of the stem.

The specific name has been appropriated in reference to the scales on the leaf petiole, and peduncle.

The vignette below is a reduced representation of the entire plant from which the coloured plate was obtained.





S. Holden, del. & Lith.

Hovea linearis.

HÒVEA LINEÀRIS.

(Linear-leaved Hovea.)

Class.
DIADELPHIA.

Order.
DECANDRIA.

Natural Order.
LEGUMINÒSÆ.

Generic Character.—*Calyx* bilabiate; upper lip semi-bifid, broad and retuse; lower one three-parted. *Keel* obtuse. *Stamens* all connected, tenth or upper one only more or less free. *Legume* sessile, roundish, ventricose, two-seeded. *Seeds* strophiolate.—*Don's Gardening and Botany.*

Specific Character.—*Plant* an evergreen shrub, with slender, slightly flexuose branches. *Leaves* lanceolately-linear, minutely wrinkled, depressed at the margins, mucronate, rather pilose beneath. *Petiole* very short, and furnished on each side with a small stipule. *Peduncles* axillary, racemose on the branches. *Flowers* purplish violet. *Legumes* smooth.

Synonyme.—*Poiretia linearis.* Smith.

Perhaps amongst all the fine things that have been wrested from that fertile source of Leguminosæ—New Holland, there are few families that surpass the genus *Hovea* in plants of a really ornamental character. Instead of the orange-yellow blossoms, so very numerous amongst papilionaceous plants, they display flowers with more popular hues, being in all the species of a blue or violaceous tint; and they appear, moreover, in copious quantities.

The species which forms the subject of the present embellishment, inhabits the district bordering on the eastern shores of New Holland, whence seeds were first imported about fifty years since.

Cultivation effects so considerable a variation in its appearance, that the weak growths, small leaves, and paucity of blossom exhibited by neglected specimens, would scarcely be identified as the same species with those that have received a more genial treatment. When rightly treated it forms a handsome bush, and is rather lavish of its blossoms.

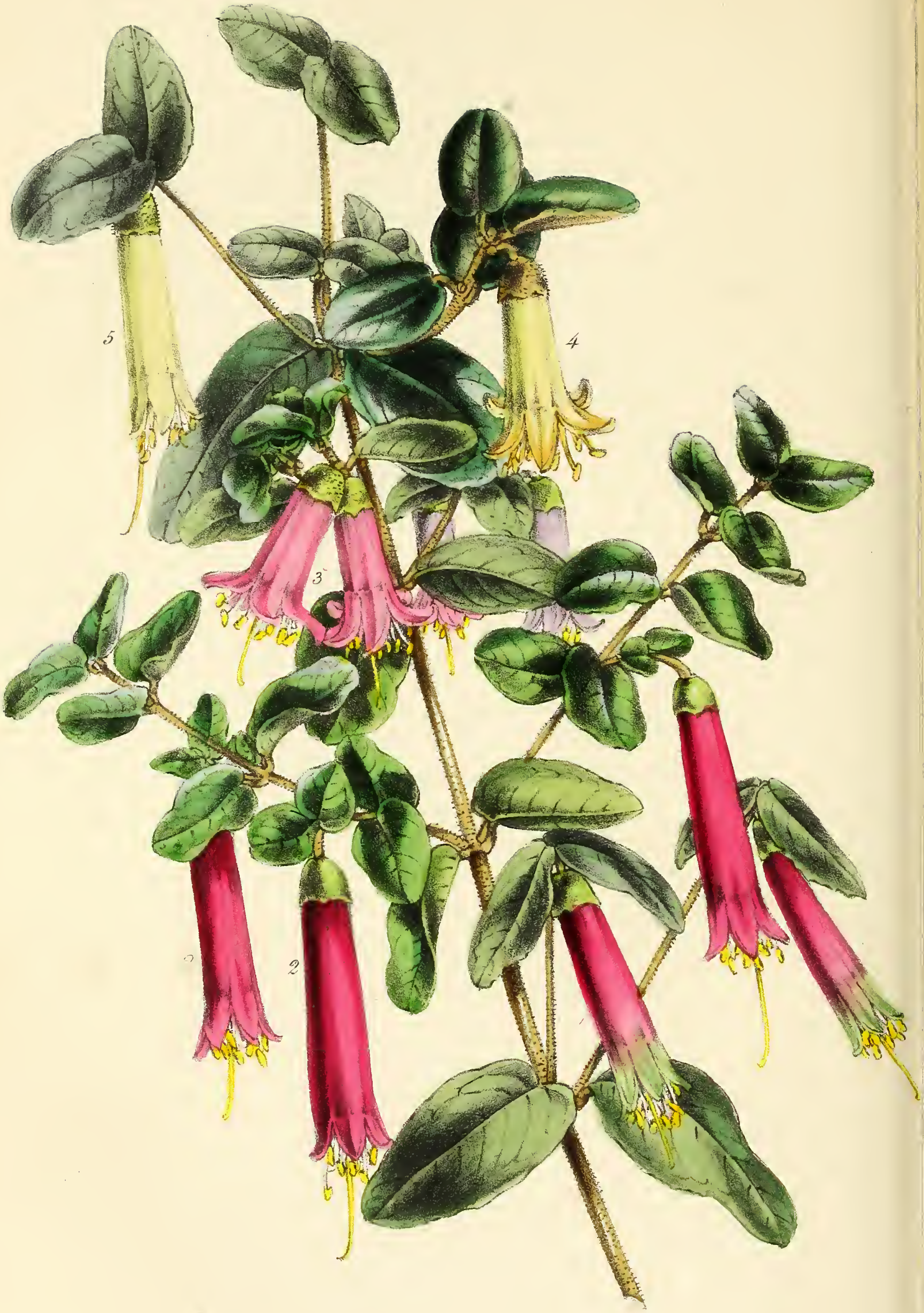
It is an excellent plan to place all the young plants, and indeed the older specimens also wherever practicable, in a pit or frame where they may be kept rather closer and warmer in spring than in an ordinary greenhouse. A sickly condition is not uncommonly engendered by too low a temperature, or the play of keen winds, whilst the shoots are young and tender.

Among the errors in its management, one of the most prevalent is the too hasty endeavour to obtain tall flowering specimens, and the consequent neglect of shortening back the shoots to encourage lateral development. A bushy compactness, without a confused crowding of shoots to the obstruction of the prope exposure of the leaves, is the character which ought to be aimed at; and as th plants have a tendency to grow thin of shoots, this standard cannot be reache without frequent pruning.

Another fruitful source of failure is the continuance of watering with the sam liberality whilst growth is suspended, as when the shoots are in course of rapi extension. Excess is as injurious as starvation; and in this case it operates b souring the soil, and spreading disease and decay amongst the roots.

A good black heath mould, rich in fibre, with a trifle of loam and sand, make a suitable compost.

Our figure was procured in March, 1843, from a plant at the exotic nursery o Messrs. Knight and Perry, Chelsea.



S. Holden. del & Lith

Corræas (Gaines' seedling var:) —
1. Picta. 2. Rubescens 3 Delicata 4 Ferruginea 5 Pallida.

GAINES' SEEDLING CORRÆAS.

(1, Pícta. 2, Rubéscens. 3, Delicàta. 4, Ferrugínea. 5, Pállida.)

Class.
OCTANDRIA.

Order.
MONOGYNIA.

Natural Order.
RUTACEÆ.

GARDEN VARIETIES.

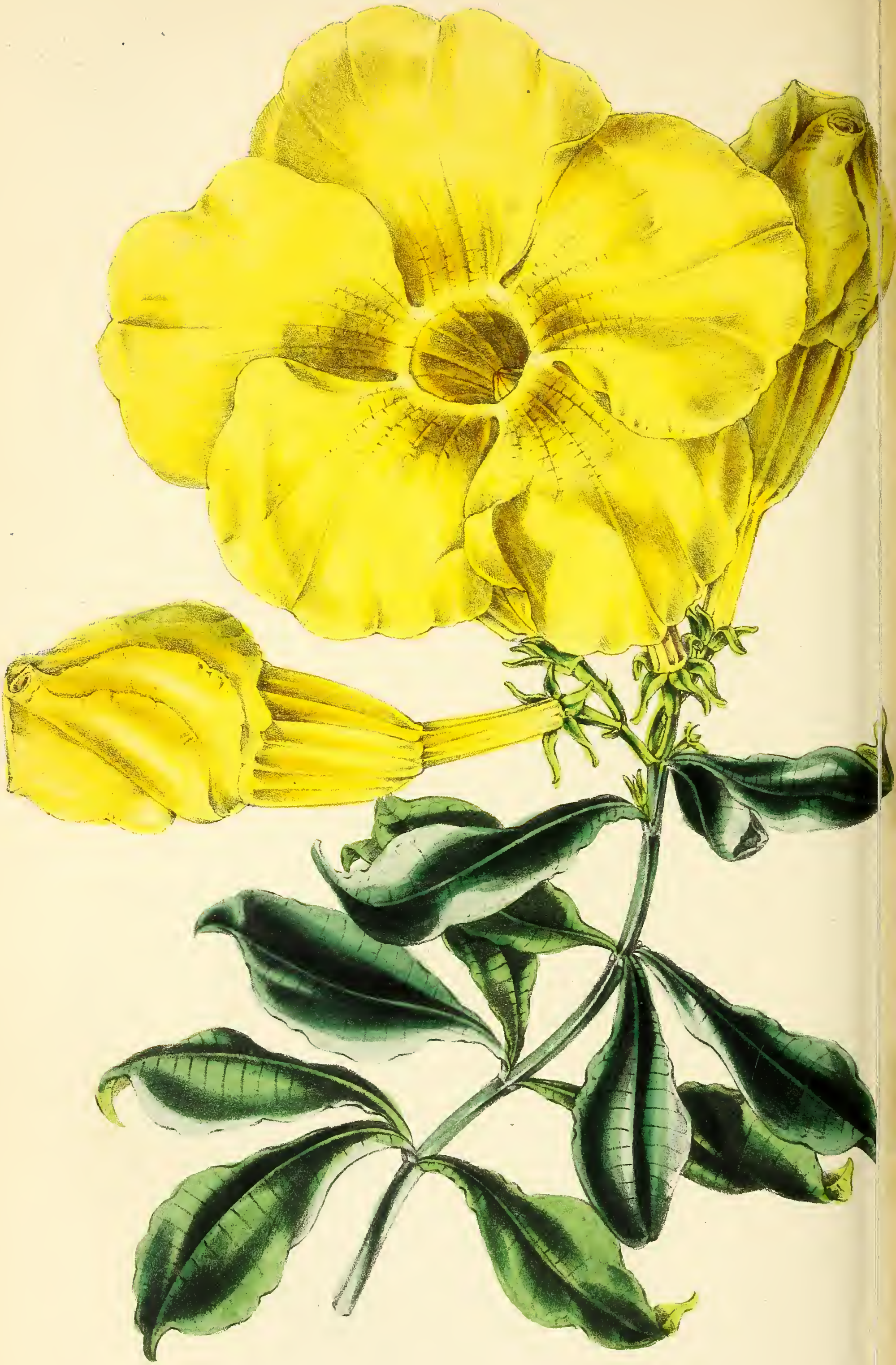
If a neat habit, and abundance of flowers with a moderate amount of attraciveness, are to be received as criteria upon which to estimate the value of a plant, we may certainly claim a favourable standing for Corræas amongst the denizens of he greenhouse. Although they are never such gorgeous figures as the Chinese Azaleas, and other plants which bloom at most but for a few weeks in the year, hey have a redeeming property in the long protracted period during which they ontinue to be studded over with their less gaudy, but not less numerous, hanging blossoms.

To the florist this family recommends itself no less by its submissive yielding o the exercise of his art, and flattering his manipulations with novel and improved ombinations. Our gardens exhibit convincing assurances in almost endless profusion of the meliorating influence of cross-fertilization; and among the number, he beautiful varieties of *Corræa* depicted in our plate, are well worth the attention f those who seek after choice flowering shrubs. But we trust we are not seeking oo much, if we regard these only as an earnest of future advancement in the scale of showiness.

They are selected from a very extensive assortment in the possession of Mr. Gaines, of Battersea, comprising varieties almost insensibly graduating both in the form and colour of the flowers, and in their respective habits, from the old C. *Harrisii* to the C. *alba* and C. *virens*. The characters of these three kinds, with hose of C. *speciosa*, *rufa*, and *Grevillii*, are variously amalgamated; and those who wish for more than five, may find many scarcely inferior to the specimens here given.

The first, *Picta*, was raised between *virens* and *speciosa*, and possesses a strong graceful habit and good foliage: in its flowers it partakes considerably of the appearance of the latter. *Rubescens* originated betwixt *speciosa* and *Lindleyan* and has very bright-coloured large flowers, with an upright habit, and shini foliage. *Delicata* is perhaps the most decided novelty, and certainly the mo beautiful amongst them; it combines the form of *alba* with much of the delica colouring of its other parent *rosea*. The inner surface of its spreading limb is the richest bright silky texture, and the flower being upright instead of pendulou this portion is exposed to view. It has a more elegant and lively appearance th the others. *Ferruginea* sprung from *alba* and *Grevillii*, and is a free bloome *Pallida* is a fine long creamy flower, with an excellent character of growth. was produced from *rufa* and *alba*, and flowers very copiously.

By grafting or inarching, all these varieties might easily be had on one plan something after the manner in which our artist has shown them in the plate. a number of the new kinds that approach each other in character might be th grown in the same space that would be required for one, using a good-sized pla of some of the common sorts as a stock.



S. Holden del. & Lith

Allamanda grandiflora.

ALLAMÁNDA GRANDIFLÒRA.

(Large-flowered Allamanda.)

Class.
PENTANDRIA.

Order.
MONOGYNIA.

Natural Order.
APOCYNĀCEÆ.

ENERIC CHARACTER.—*Calyx* five-parted; segments ceolate-oblong, acute. *Corolla* funnel-shaped, with arrow tube; and a swollen, large, inflated limb, ich is five-cleft at the apex; furnished with five les in the throat of the tube, which cover the thers. *Anthers* five, almost sessile, converging. *le* one. *Stigma* capitate, contracted in the middle, hering to the anthers. *Capsule* echinated, roundish-iptic, one-celled, two-valved, many-seeded. *Seeds* rounded by a membranous edge, fixed to the edge the valves. *Albumen* wanting.

SPECIFIC CHARACTER. — *Plant* shrubby evergreen. *Stem* erect, or spreading, not scandent, covered with very short downy hairs when young. *Leaves* three in a whorl, nearly sessile, oblong-lance-shaped, acute, attenuated at the base, pilose both on the mid-rib and lateral veins beneath. *Flowers* very large, lemon-coloured, in clusters, usually of four or five, at the end of the young shoots.

FOR the opportunity of preparing the accompanying figure of this showy ant, we are indebted to the kindness of one of our most successful cultivators, r. Dodds, gardener to Colonel Baker, at Salisbury, who favoured us with ecimens in September, 1844.

We learn by a communication from Mr. Cunningham, of Edinburgh, that it as first discovered by Mr. Gardner whilst exploring the Brazils; and from seeds pplied by him, in 1836, it was reared in the Comely Bank Nursery, Edinburgh. rom this source the plants now in the London and large provincial nursery tablishments were primarily obtained. At this time fine specimens are in several the metropolitan gardens; and although yellow flowers are seldom so much ized as those of other colours, the extraordinary size and great abundance of ose of this plant invest it with so much conspicuousness, that it can scarcely fail attract its merited quota of regard.

It seems doubtful whether it can be regarded as a distinct species, and we are ore disposed to consider it in the light of a strongly marked variety of . *cathartica*. The most prominent distinguishing traits which it presents are the rger size of the blossoms—usually between four and four inches and a half in ameter, their paler colour, and the absence of a climbing character. The leaves, oreover, are smaller, more closely nerved, and commonly only three in a whorl, hilst the complement in *A. cathartica* is generally four. A healthy plant under od management will form a compact bush, two or three feet high, and nearly as much across, in the course of a season. The blossoms are disclosed during e latter part of summer, and continue to open till late in October.

A similar process of culture to that bestowed on *A. cathartica*, will be equay favourable to this. The leading feature of Mr. Dodd's plan is to subject the plt yearly to a severe pruning, seeking rather to obtain the summer's growth from e base of the old stem, than to preserve much of the previous season's shoots; d to provide them early in spring with a suitable warmth and moisture, as well t the root as in the atmosphere. Independently of the facility which this systn affords of avoiding the acquirement of a straggling and naked appearance, s utility is most obvious in the superior vigour and robustness of the shoots, and e greater abundance and enlarged dimensions of the inflorescence.

To realise the perfection of the plant, it must moreover be potted in a strg soil. This is an essential accompaniment of the foregoing plan, and if not obserd will certainly detract from the success of it. The sward from a pasture fid mixed with dead leaves and laid in a heap to rot for twelve months, will suppl a compost of the highest order. When it is used it should be broken with the hd in preference to chopping with a spade.

Young plants are easily procured from cuttings struck in sand in an ordiny propagating pit.

RETROSPECT OF THE LATE WINTER.

OUR title may not appear apposite, yet it will be found perfectly so, and keeping with the objects of a floricultural periodical. When we retrace e four entire months which have elapsed since the first advent of severe st, and take into consideration that in Britain, as well as in France, there ve been three distinct periods of winter, each of a character so rigid as to allenge competition, we feel called upon to solicit the notice of our readers, order to lead to inquiries concerning the effects that must have been produced in rdens, and glazed erections of every description. These will prove instructive, asmuch as they point to improved management in seasons to come. We shall trace a few leading phenomena.

Every one will recollect the peculiar aridity of the spring and early summer of 44. Some autumnal rains followed; but to no great amount, at least in the uth of England. After the middle of November, when rain ceased, several vere frosty nights occurred, and a steadfast gloom prevailed: this continued roughout December, with scarcely any interval of sun, the wind searching, and ten violent from east to north; there were three weeks of such black, cold eather; and while it became essential to cover up every forcing-house or pit, it as proportionally difficult to retain the coverings against the force of the wind.

We have lately said a good deal upon the subjects of heat and light, and, therere, are the more inclined to seek information concerning the availability of the veral methods of excitation which have been called into action during a season of culiar character and unwonted severity.

The *Gardeners' Chronicle* has taken notice of the extreme absence of solar ght, and lamented the hard lot and difficult task of those gardeners whose only pliance during the shortest days, and most bitter nights, was the old-fashioned noke flue. The subject of a moist atmosphere has been assumed with more than dinary solicitude, and great importance has been attached to the theory of the te Mr. Daniell, of King's College, who wrote a scientific paper "On Climate condered with regard to Horticulture;" and prepared an hygrometer, by which the tual degree of moisture, connected with variations of temperature, might accurately determined. We extract the following paragraph from the first lume of *Loudon's Gardeners' Magazine*, where the article in question is viewed:—

"The inhabitants of the hothouse are all natives of the torrid zone, a climate stinguished by an unvarying high degree of heat, and a very vaporous atmohere. In a hothouse, when all the paths and walls are in a dry state, exhalation an extraordinary degree takes place from the only sources of moisture— e leaves of plants, and the earth in their pots. This prodigious evaporation is jurious to plants, first, by chilling their roots, on the same principle that water is cooled in Spain and India by being put into porous earthen vessels ; and, secondl by exhausting the vegetative powers of the plant. Vegetables also have the pow of absorbing moisture from the atmosphere, and must consequently suffer in propo tion as this is in an arid state. Those three considerations show the great impor ance of a vaporous atmosphere in hothouses raised by keeping the floor of tl house and surface of the flues continually wet."

Mr. Knight was also a great advocate for an absolutely saturated state vaporisation, that is, when high temperature was kept up ; and now, havir appealed to the authority of past years, we may with more propriety cite tl evidence of recent facts accruing under a much improved method of heating, ar during a winter unusually sombre and of protracted severity.

We have said that some writers have lately expressed their opinions of the ri that must have been incurred by those gardeners who had to depend on fire-flu only during the late black winter. A very few years have elapsed since there we no other appliances of heat than such flues ; and winters of equal rigour ha repeatedly occurred without producing any disastrous results. We happen possess opportunities of comparing the progress and effects of the two methods heating, carried on pretty extensively, and can therefore assert that we never sa a large greenhouse, filled with the finest specimens of Camellia, Epacris, Acaci and other hard-wooded species, with a liberal admission of Cyclamens, Mimulu Cinerarias, and the more succulent tribes, in a higher state of health, perfect foliag and brilliant flowers ; and this greenhouse was heated by a fire-flue only, runni abreast of the front wall, though not quite in contact with it. The aspect is eas by-north, and, therefore, without sun from November to mid February. The facts may tend to calm the anxiety of those who are over-solicitous concerning tl absence of the direct solar ray.

Again, we see a beautiful crop of grapes, with noble foliage, in a *stove*, heat by broad, expansive, water channels, the clusters stoned and nearly ready to acqui colour in the second week of April.

A *flower-house* is in two compartments ; the one excited by a gutter-tank, fro which are continued a double course of six inch by four channels, the other, by single course of the same, admitted from, and returning to, the former, throu openings made in the partition wall. Now, in all these houses, wherein of cour there has existed a great difference in temperature, from 50° to 73°, every pla has prospered.

The moisture has been considerable, in the tank department particularl wherein a great number of Gardenias are, and have been, in rich verdu while almost every cutting of this plant has taken root, and is growing aft transplantation into small pots.

Darkness—fog of dense character—absence of sun for weeks, may ha retarded, but they have done no injury. Even *Hibiscus rosa sinensis*, you plants of spring cuttings, have not lost a leaf : thus we have ample evidence, th y a vaporous atmosphere, even while in the external air the thermometer showed 5° of frost, no mischief was occasioned.

Having seen that one of the most cold and sombre winters upon record as been passed in security, we begin to think of *shade* as well as of *light*. A uth sun is doubtless of great utility to plants under certain circumstances; it imulates vegetation, attracts the ascending fluids, promotes laboration and cretion; but on the other hand the direct ray frequently burns, etiolates the etals of flowers, and scalds fruit. We require therefore a certain semitransparent edium, which shall produce a twofold effect; first, that of a softened diffusion of he direct ray; and second, that of protection from the cold of frosty nights. lose, but clear cloth, whether of linen or cotton, strained tight upon accurately ade deal frames would answer the purpose well. These should be made to slide ver the common glazed sashes, and be guarded from the force of wind by strips of ood fastened to the midribs of the rafters, also by a pin or two to fix the frame t top and bottom. Two advantages would attend the use of the screens, which annot be obtained by a covering of mats on rollers:—security of position, avoiding hose troublesome and injurious nailings and fixings, which so perplex the gardener n windy weather; and above all, the increased temperature of the house, occasioned by the intervention of a stratum of air between the glass and the fabric of he screen, which would tend much to prevent that radiation which rapidly cools a ouse. Trouble and expense attend all the labours of man; but when we reflect pon the great decrease of cost in glass, the super-excellence and strength of the ew sheet glass, and the security from breakage conferred by sliding screens, ersons who can afford good erections should not hesitate at a trifle to obtain nmense advantages.

We next require a good varnish for the fabric, one which will rather aid its ansparency without rendering it liable to crack. If some preparation of Indian ubber could be employed, it might effect every object; if not, common soft oil not linseed) would preserve the fabric for a year; and calico will soon be so cheap, hat a renewal will be a mere trifle. The addition of a small quantity of white leached wax to the droppings of olive oil, laid on while warm with a soft flat rush, would give texture to the covering.

Having seen the destruction of numbers of beautifully made screens, which hen new gave every promise to supersede glass, we must come back to glazed ashes, and fortunately the price is reduced just at the time when the quality is of rst-rate excellence. A year or two since we had only the quarrées of wretched rown glass, which snapped by dozens under the influence of a night's frost; now, ith large pieces six inches by nine, it is a rare circumstance to see a broken pane, nd so true are the edges that a sash may be glazed without a single lap. The ccuracy of the fittings, and the solidity of the glass, will secure at least 3° of mperature in excess; and when, in addition, we cover with a calico-prepared reen, so fitted as not to be disturbed by any force of wind, a forcing-house may cease to be a subject of much anxiety. We shall be much disappointed if grap continue subject to shanking, or flowers be rendered unsightly when grown in house warmed by an available tank and channels, and protected by coverin which will leave the entire regulation of solar light at the control of an intellige gardener.

ON MANETTIA BICOLOR AND CORDIFOLIA.

AMONG the numerous fine things introduced by the Messrs. Veitch and So of Exeter, the pretty *Manettia bicolor* is one of peculiar interest on account of t profusion of its blossoms, their pleasing colours, and the lengthened period of th development. And, when well managed, the old *M. cordifolia* is equally beautif, if not more so: its larger flowers, at least, render it a more conspicuous object.

Both the species are rapid-growing plants, and, under proper appliances, so produce flowers. We do not generally, however, see them flowering with th freedom of which they are capable, nor so much attention bestowed on th winter condition, and the production of flowers at that period, as seems desirab. The fact is, they will both grow and flower like many other plants, without mu special care; but to show what they really are—to draw out that ornate asp for which many have so justly praised them—some additional care, and what more important, a proper guidance of it, must be lavished on them. We wi therefore embody, with our own observations on their treatment, the remarks f some of our most successful friends.

The reason why the advantage of their blossoms is so frequently lost to t greenhouse for the greater part of the summer, seems to be mainly owing to t desire to obtain large specimens; and, perhaps, a little mismanagement, or ofte rather the want of suitable convenience for keeping them through the wint. For instance, supposing a plant is reared from a cutting in February—or, in t case of *M. cordifolia,* during the previous autumn—as soon as it has filled a small pot with roots, it is removed to one many times larger, and kept growing rapi with the aid of stimulants, till the latter part of summer. During this perio does not of course form many flowers, and they are only beginning to be disclo plentifully as the winter approaches. If left in the greenhouse, it soon beco sickly and unsightly; and it is only a few places that can afford room for ma extra large plants in the stove through the winter.

Where there is ample room, however, we would by no means discourage practice of growing specimens to a large size. If the flowering of the plants delayed till the autumn by keeping them in rapid growth, and they are th removed to the stove, stationing them in an airy part, they will be in the m favourable spot and condition for blossoming through the winter; and by a lit management in spring, in pruning and partially renewing the soil, to induce th o put forth fresh lateral shoots all over the plants, they may be removed to flower n the greenhouse by the middle of May. By this method they will bloom opiously for the whole summer.

But as a more generally useful system, we should prefer confining the roots within smaller pots, to promote a flowering state at an earlier date with moderate-ized plants. By aiming to have the pots filled with roots before the first mid-ummer, they will soon after disclose blossoms freely; and they may be continued n vigorous health by the occasional application of liquid manure. A weak olution of guano supplied from time to time, after the plants have pushed n abundance of roots, greatly improves the colour of their leaves, and enables hem to bloom more copiously by keeping up a healthy, but slow and steady state f advancement. If, instead of this, fresh soil and more pot-room should be given, hey will be pushed into an exuberant growing condition that will stop the development of flowers till it has again spent its force. And, besides being more useful for a small greenhouse, moderate-sized plants, when covered with flowers, might be removed to the drawing-room, if they can be set in a situation where hey may enjoy sufficient light.

The reason why *M. cordifolia* so seldom succeeds planted out as a greenhouse climber may most commonly be traced to some error or carelessness in the management of its roots. They are either allowed too much room to spread, or are placed in some dark cold spot, perhaps under the shelves or stages, or they receive more water than accords with their constitution under the lower temperature they are subjected to. A slate or brick compartment about twelve or fourteen nches square, and about the same depth, is quite ample extent for the largest plant; and even this space must be well provided with porous substances to aid the diffusion of water. Further, in winter water must be most abstemiously supplied; indeed, scarcely any will be required then. It is necessary, likewise, gradually to abate the quantity furnished during the latter part of summer; otherwise coarse luxuriant shoots distended with water are generally formed, such as will neither flower, nor stand uninjured through a dark cloudy winter.

Whenever these plants, and others of similar nature, are continued in a greenhouse throughout the winter, whether in pots or planted out, they should always be as fully exposed to light as circumstances will permit, and a circulation of the air promoted on every favourable occasion. Those in pots had better be set near the glass, and in a station by themselves, to prevent any accidental over-supply of water. Damp and a deficiency of light are, in fact, the only serious influences to counteract. If a dry air and a light situation can be commanded, the ordinary low temperature of a greenhouse will have little effect on those plants to which some attention to maturing the summer's growth has been devoted.

The most favourable course of summer culture runs much with that of the vine, as far as regards the changes beneficial in the state of the atmosphere. Indeed no place agrees better with them than a vinery commenced about the end of February. Young plants placed there with a little attention to stopping th strong shoots for the encouragement of laterals, will thus be in a complet flowering state by midsummer, or a little later. They may then either be allowe to remain, or be removed to the greenhouse. Perhaps the latter may be mos advisable, if for no other reason than to protect them from the red-spider an green-fly which would be apt to prove serious pests in the dry atmosphere essential after that period for the perfection of the grapes; but when they can b saved from the attacks of these insects,—they flower more abundantly if allowed t stay, than they do in the greenhouse.

With respect to training the shoots, most people adopt trellises of som description. For large plants something of the kind is almost indispensabl especially with *M. bicolor*. Much of the effect of plants on trellises, howeve depends on the taste displayed by the culturist in training. It will not do t train rigidly, and confine all the shoots to their very points; they should alway be left somewhat loose and flowing. But for the smaller specimens there is n the slightest need for trellises; they will look infinitely better without them tastefully managed, using nothing but a single stick for a support, assiste perhaps by a little wire near the top. By frequently stopping back after the have once reached the summit, they are deprived of much of their ramblin character, and soon make graceful bushy specimens, throwing out lateral flowerin sprigs in plenty.

As to soil, they are not bad to suit, provided it is not heavy or retentiv Loam and peat, or leaf-mould and loam with a portion of river-sand, answer ver well. Where small plants are wanted, the first ingredients are most appropriate whilst the latter best promote a vigorous condition. When planted out, or potte in large pots, pieces of charcoal, or charred turf, may be used with advantage.

Since the paper on the Conservative Wall-plants at Chatsworth was writte the *M. bicolor* has been destroyed. Possibly it might survive through a less seve winter than the last; but it will doubtless always prove better to renew the plan yearly, planting out such, in May, as have already made considerable progres A prepared soil, and a dry sunny situation, are indispensable matters to induc them to thrive here.

ROCKS AND ROCK-PLANTS.

WHEN rockeries are introduced to a garden scene, their formation is influence by one of two very different intentions. They are either designed as imitations the natural features of a wild and rugged scene, or they are contrived for the pu pose of furnishing a suitable situation for the cultivation of such plants as a naturally adapted for, or more successfully grown under the conditions they affor or have a more interesting effect on rock than when cultivated in any other way.

It is to the consideration of the principles and conditions which ought to overn the formation of the latter class, together with a few remarks on some of ose plants which are naturally more pleasing when placed upon them, that we urpose most especially to devote the present paper. With this view, then, let s first inquire what are the chief points in which the two descriptions of rockork differ from each other.

The professed aim of rockeries of the former kind being to copy the most icturesque assemblages of natural rocks, or by a tasteful and discriminate election of the most interesting, to compile a structure that shall be both striking nd free from those portions which, even in a natural scene, frequently destroy nity of character, it is necessary that it should be both at some distance from the ansion, and also that the fragments employed be large and massive. For, where great thing is attempted—and a great thing it is to copy well the wild forms of atural rock—unless the means and material employed be perfectly adequate to, nd in harmony with, the object attempted, the result must be puerile, and an ffectual display of the impotence of the contriver. All the vegetation, moreover, hich accompanies an extensive rockery should be subordinate to it; and instead f constituting a prominent and leading feature, should be merely sufficient, and so isposed as to give relief and diversity to it.

In the other description of rockwork, the construction must be ruled by very ifferent, and in some respects opposite considerations. Here it is the plants, and ot the rocks, which are mainly expected to contribute ornament; consequently, so ar from the smaller fragments of rock being objectionable, they are here rather to e sought after as furnishing a more extended number of crevices and suitable laces for inserting plants. It is, moreover, necessary that the plants be more opiously distributed, to preclude the possibility of the real object ever being misaken. And, with regard to the situation, it is not by any means necessary that hese should be confined to the wilder and more remote scenery of the grounds; ut on the contrary, they may be admitted to the more highly finished portions ith propriety and advantage.

But whilst the ruggedness and massive character of the more legitimate rockery ust not be affected when the chief aim is to provide a proper site for the display f particular plants, it is equally inadmissible to fall into the opposite extreme, by dopting an even unvarying uniformity of surface and arrangement. In carrying ut this observation, it is needful to indulge in considerable latitude to preserve armony with the leading characteristics of surrounding objects; and if so be that ircumstances demand, let it lead from perfect ruggedness till it sinks into the olished border, forming an insensible bond of union between them.

The vicinity of the flower-garden or plant-houses beside an arbour, or any uch frequented spot, especially where there is a bank backed with a shrubbery, enerally present an abundance of situations possessing an eminent suitability for a ork of this kind. The margin of a basin of water may often be much improved by such an appendage ; and in numerous instances where it is necessary, or at al events, extremely useful and convenient to have cisterns or small reservoirs i various parts of the grounds, they may be rendered very interesting by surroundin them with an irregular sloping bank of rock, adorned with showy trailing specie of plants.

We have before alluded to the propriety of selecting smaller pieces of ston and it is quite as desirable to make choice of various sizes. Such also as presen a rough uneven surface, and differ most widely from each other in general outlin are to be preferred before those with a plain surface. The chinks and crannie between them, and every favourable recess which they afford, should be partiall filled with soil for the plants to take root in, adapted to the predilections of th species intended to occupy the several stations. In this manner fragments of roc may be piled up to a considerable height against steep banks, or employed to hid a wall, with propriety ; and the special adaptability of such a spot for the displa of trailing plants is by no means of trifling moment. Steep banks of this kind, c formed entirely of rough stones run together, will frequently be beneficial, thrown up, with a view to shut out some unseemly object, or to check a curre of wind in some exposed locality.

But beyond the benefit conferred of supplying a place when the elegance prostrate species is more apparent, it is also the means of imparting a more matu and flowery state with greater certainty than can be gained in some delicate plan by other means. Many species, which are constitutionally too tender for th ordinary climate of this country, are induced to grow here with singular prosperit even although in the common flower-beds they will scarcely retain life. It wi be naturally asked, how is this ? In a great measure it is evidently to be ascribe to the greater uniformity of moisture. In a dry season a plant in a bed of comm earth is liable to suffer from a deficiency of moisture, whilst in a wet season it equally subject to be injured by a contrary excess. But planted on rocks enjoys a happy medium : the superabundance of fluid percolates amongst, an drains away between the stones ; and if a time of drought follow, the ston prevent that rapid evaporation which inevitably takes place when the soil has n such protection. Any one may convince himself of the truth of the latter, and its profit to vegetation, by noticing the herbage round a stone in a pasturage corn-field in a dry summer, like that of 1844.

A redundancy of moisture in the soil, particularly under a still atmosphere, undoubtedly the main cause to which the sudden loss of many species of annua and delicate-rooted half-hardy perennials, is truly referable. We allude princ pally to such plants as Brachycome, Leptosiphon, *Zinnia*, Salpiglossis, *Phl Drummondi* and *Ipomopsis picta,* amongst annuals and biennials ; and to some the small Lobelias and Nierembergias amongst perennials ; and even the herbaceo Calceolarias and the rampant-growing Petunias are not entirely exempt fro "damping off" under the same influence. In winter it is destructive to a still great umber, even amongst plants that are quite hardy enough to endure several egrees of frost; and to some of our native species, which, when favourably tuated at the roots, will brave the sternest winters in the most exposed localities; f which the rock-rose (*Helianthemum*) is a familiar example. And here we may emark, *en passant*, that in all cases where this family are cultivated in common ower-beds, they must not only be well drained at the roots, but the surface hould be covered with small pebbles, shells, or pieces of brick, to prevent the hoots from resting directly on the damp earth. Of course, on the side of a hill here they are exposed to brisk winds, and more in their natural circumstances, hey are not so liable to harm without the pebbles, as in low or level situations. ecided succulents, such as Sedums, Sempervivums, and the hardier species of acti in summer, together with the whole race of alpines, are rarely so successfully anaged in the open garden in any other way, as in situations similar to that we re now advocating.

We have occasionally seen very engaging effects created by masses of the ommon scarlet *Pelargonium* planted on a pile of rough stones, having the interices filled with mould. Under these circumstances, the excessive luxuriance of the ecies is held in check, and a more speedy and copious bloom unfolded. *Petunia*, *olana*, *Salvia*, *Amphicome arguta* acquire an earlier and a more floriferous habit. he *Mesembryanthemum tricolor* (or *M. pyropæum*, as it is also called) is a elightful object when cultivated thus, in extensive patches; and the contrast of nt which stones afford in a natural state—that is, worn with time, and not resenting any recent clefts—is a great enhancement; through lending a more ecided character to the colours and appearance of the flowers and foliage, without eing, in the smallest sense, destructive of harmony.

We might multiply instances almost beyond number of beautiful things that re benefitted by the kind of situation here broached; but our object is rather to raw attention to its influence generally than to individualise farther than is ecessary to the explanation of the subject, and to indicate the kind of plants hich are capable of a more exalted character, or extensive culture beneath its orking.

We have yet to invite deliberation specifically to its adoption in the narrow orders attached to the front of those plant-houses having a low parapet wall, with view to their amelioration and increased adaptability for the reception of stove nd the more tender greenhouse exotics. Few, we imagine, will attempt to insay the desirableness of extending the cultivation of such plants as the *chimenes coccinea*, the delicate Thunbergias, Alstrœmerias, and similar attractive ings, amongst which we may include a vast number of species belonging to the *maryllis* and *Iris* tribes; and these can be made to grow and flower favourably similarly protected places to those we have just alluded to.

In addition to what has been already advanced as influential in augmenting e power of a delicate exotic to exist and flourish in the open air, we must now advert to the direct communication of warmth to the earth. A higher temp rature is undoubtedly indirectly engendered by the diminution of moisture; but the situation here described, another source is provided by its communication wi the walls of the heated building. This will be still further modified by t sheltered nooks which the irregularities of the rock-work afford. It might inferred that such a combination of auspicious influences would constitute a sta well calculated to accomplish the result in view; and we find this supposition to practically supported to the full, except in those cases where local disadvantag (chiefly atmospheric) interfere with its utility. Autumn-sown annuals, and sprin flowering bulbs would render it gay at an early time of the year; a well chos collection of plants might continue the charm to a late season; and a parti intermixture of hardy trailing and low-growing evergreens, either permanently temporarily planted, would in some degree atone for the deficiency of other thin in winter; and surely this is to be preferred to the glare and stiffness of a bri wall.

It can hardly be thought out of place to say a few words in conclusion on t introduction of a small rockery to the petty garden plots which front so ma suburban residences—we mean against the division walls. In these plac however, very tender plants should be avoided, as they seldom bear the vitiat atmosphere. Such plants as ivy, periwinkles, and similar hardy spreading thin should be most prominent; and flowering plants, like the Honeysuckle a Ayrshire roses, with other smaller things of a more flowery nature, might suffered to ramble amongst them. The country cottager might also have l rockery, and be thus enabled to cultivate many things with ease, that he fin difficult to manage without it.

CURSORY REMARKS.—PALMS.

THE Palmaceous tribe is one in which almost every one feels himself interested, furnishi as it does the principal feature in the vegetation of a vast tract of the globe, and many of t species ministering largely to the wants and conveniences of mankind; and, what comes m within our immediate sphere, possessing characters at once beautiful and magnificent.

A visit to the noble collection at Messrs. Loddiges' will amply remunerate any one who c avail himself of the opportunity there afforded of viewing such kinds as have been introduced this country; and especially at the present time, that some of them are displaying th florescence and fructification. The latter are certainly principally those of less gigantic growt and there is nothing in the floral parts in anywise showy or gaudy-coloured, such as we find plants of humbler dimensions; the fruit also in some is obviously very imperfect. Neverthele the interest which necessarily attaches to the tribe, renders the circumstance worthy attention.

Both male and female specimens of the *Chamædòrea elàtior*—tall reed-like trees, with a t of fronds having broadish pinnate leaflets at the summit of the stem—have developed florescen and near to them a plant of *C. Schiediàna*, another species, with a slender knotty stem, eight nine feet high, is bearing a branched chandelier-like amber-coloured spike, adorned with sm black fruit, to appearance much like the berries of the *Fúchsia microphýlla.*

Geonoma Schottiana, another elegant palm, of somewhat slender growth ; the stem marked ith nodular rings, indicating the places where leaves have fallen away, and adorned on the top ith gracefully-curved fronds, has also developed large pendulous panicled clusters of small und greenish fruit. The seeds of this kind have been frequently matured in the Hackney alm-house ; and specimens now exist there which were reared from some that ripened a few ars ago. Besides these, there is a small plant, about four or five feet high, of the *Œnocárpus celsa,* a kind approximating to the last in habit, with a few panicles of florescence. In its tive localities, in South America, this species shoots up to an immense height. Its generic me is acquired from the vinous qualities of the fruit.

Among the more lofty species, there is a noble specimen of the rare *Arēca montāna* (one of e Cabbage Palms), which, from around its stem immediately beneath the plumy crown of liage, has emitted several branched flower-spikes. This plant is a most graceful production d one of the finest of the collection, being nearly forty feet high. We understand it has been uited in England ; but so far, none have set on the specimen under notice.

We abstain from particularising any farther, and pass on to another interesting feature, volving something of a cultural nature. We refer to the numerous Orchidaceæ which have en fastened on the stems of some of the stouter Palms, and stuck in the projections which the mains of the old leaves furnish. The kinds principally employed are Oncidiums and Lælias, rt of an importation received last summer. A few have been treated thus for a longer period. ey look perfectly healthy, but as yet, the plan has not been sufficiently tested to show how far may affect the production of flowers. A few of the commoner kinds have been similarly fixed some of the trees of the jungle in the large conservatory at Chatsworth.

As it is now a matter of experience that many orchidaceous plants thrive better in a cooler mosphere than that to which they were formerly subjected, there is at least the likelihood of taining a moderate share of success ; and if such plants as *Oncidium altissimum* and *Lælia ceps* will thrust out their long flower-stalks when placed on the trunks of Palms, their charac- ristic situation will atone in some measure for a slight deficiency of individual excellence.

In a Palm-house or stove-conservatory, sufficiently well-glazed to be waterproof, a pleasing fect might be created in the latter part of summer, and through the autumn, by removing there few of the least delicate species brought into flower in the orchidaceous house, and suspending em from the leaf-stalks of the Palms, or the boughs of other trees. The overhanging foliage uld form a natural shade, and the more airy situation would help to prolong the duration of e blossoms. It would scarcely be prudent to attempt the plan in spring, as the moist atmo- here and syringing then required would soon spoil the flowers. Possibly some of those chidaceæ from more elevated regions may be wintered in the position here described.

FLORICULTURAL NOTICES.

NEW OR BEAUTIFUL PLANTS FIGURED IN THE LEADING BOTANICAL PERIODICALS FOR MARCH AND APRIL.

Blandfo'rdia margina'ta. Till lately, the only two species generally recognised as belonging this fine New Holland genus were *B. nobilis* and *B. grandiflora.* About two or three years o, the present appeared in the nursery of Messrs. Osborne and Co., of Fulham, and was called *marginata* by the Dean of Manchester. It is much handsomer than *B. grandiflora,* and ffers from it, in having deep copper-coloured flowers, instead of half red and half yellow ones. e blossoms, too, form a nearly regular cone, whilst those of the other are contracted near the se, and swollen in the upper part. It is abundant in Van Diemen's Land, and seems to be the *letris punicea* of Labillardière. Mr. Gunn found it plentifully in a poor quartz sand, generally rather wet places, on Rocky Cape, in 1837. That botanist proposed to name it in commemo- tion of Mr. Backhouse, who was well versed in the Tasmanian Flora ; but the present name ving been published, another species sent home by Mr. Gunn, from the banks of the river ersey, about fifty miles from Launceston, has been called *B. Backhousii.* It is a plant with leaves similar to *B. grandiflora,* and flowers disposed in a corymbose order, of a form similar those of *B. marginata.* It is said to be a splendid, free-blooming kind. Still another species h been added under the name of *B. Cunninghamii,* with deep rich red flowers, twice the size *B. marginata.* It was found by Allan Cunningham, but no locality is mentioned.—*Bot. Reg.*, 1

Calceola'ria floribu'nda. Found by Mr. Lobb, in the American Tropics, and sent Messrs. Veitch's nursery at Exeter, in 1843, where it flowered last September. It was discover at an elevation of 11,000 feet above the sea, in the environs of Quito, and hence will probab prove a greenhouse plant, and perhaps thrive in the open air in summer. It is a sub-shrub plant with narrow leaves, and many-flowered corymbs of pale-yellow blossoms, apparently som thing like those of *C. thyrsiflora.*—*Bot. Mag.*, 4154.

Ce'strum auranti'acum. Most of this family have flowers of a greenish or some dingy colou and only recommend themselves by their occasional sweetness. The large, and clear orang coloured blossoms of the present, invest it with more gaiety. It forms a handsome greenhou shrub, and may probably prove useful for the open border in summer. It has dark green, shini oval leaves, and is ornamented in winter with numerous snow-white, pear-shaped, berries. T flowers come in spikes on the top of the branches, and have a scent of orange-peel. Mr. Skinn sent it from Chimalapa, in Guatemala, to the Chiswick garden, where it flowered in August, 184 It is a deciduous plant.—*Bot. Reg.*, 22.

Dysophy'lla stella'ta. Till Dr. Blume corrected the error, the Dysophylls were regard as Mints ; they are common in the warmer parts of India. The Starry Dysophyll is a "delica little light green plant, looking something like a Bedstraw, but more erect, and bearing spikes of t prettiest little purple blossoms, which remind the observer of the spikes of a *Mimosa*, or some su plant. The long tender filaments are directed downwards, and being covered with delicate hai produce the appearance of plumes of purple silk." It is mentioned by botanists as inhabiti Malabar and Mysore. A specimen flowered last October, in the Earl of Auckland's garden. must be managed in a warm greenhouse, and looks like a plant that would thrive well, where roots could run amongst damp pebbles.—*Bot. Reg.*, 23.

Gesne'ra Schiedia'na. A very pretty species, flowered last November by Mr. Forbes, Woburn Abbey, where it was received from Mexico. "It quite agrees with the *G. spicata,* of De Candolle (also from Mexico), and seems different, as that author suspected, from t original New Grenada *G. spicata* of Humboldt, in which the inflorescence is more truly spica the flowers smaller, and the corollas much less hairy. Our species is remarkable for its richl coloured blossoms, clothed with long shaggy hairs ; their colour a bright golden scarlet ; t limb variegated with red and yellow, the red arranged in broken lines. It is an erect-growi plant, with soft downy oblong leaves, generally three in a whorl, and sends out a number flowers from each node. [It has also flowered in the Kew collection.] *Bot. Mag.*, 4152.

Gove'nia utricula'ta. This singular terrestrial orchidaceous plant, "remarkable for t large transparent, bladdery sheath surrounding its scape and the lower part of its leaves, w only known for a long time through the description of Swartz, who gathered it in Jamaica a Hispaniola." With the same specific name still retained, it has been severally referred botanists to *Cymbidium* and *Limodorum.* A plant sent to Kew from Jamaica by Mr. Purdie, a grown amongst earth in a pot, blossomed in September, 1844. "The bladdery sheath see destined to contain water for the nutriment of the plant." It has cream-coloured flowers arrang in a spike, six or eight inches long.—*Bot. Mag.*, 4157.

Iochro'ma tubulo'sa. This is the plant noticed at p. 213, vol. xi., as *Habrothamnus cyane* and together with two others, *I. calycina* from the woods of Guayana, and *I. grandiflora,* fr the mountains of Saragura, both discoveries of Mr. Hartweg's—has been separated to form new genus. Mr. Hartweg found this plant in the form of a shrub, from four to six feet hi growing on the mountains of Yongana, near Loxa. It flowered in the garden of the Horticultu Society in August, 1844. *Bot. Reg.*, 20.

Lobe'lia thapso'idea. This species so far excels even the most stately and showy plants the genus, as to have obtained from De Candolle the epithet of *Lobeliarum princeps.* P gives the height as six feet. Mr. Gardner, to whom our stoves owe the possession of this f plant, gathered specimens measuring eight feet. The collections at the Kew, Glasgow, a Dublin Botanic Gardens, contain plants of it. The stem is herbaceous and leafy, something li ır *Verbascum Thapsus,* and ends in a very large pyramidal raceme densely set with rosy ırple-coloured flowers. *Bot. Mag.* 4150.

Myo′porum serra′tum. A very close-growing bush, attaining, in its own country, from six eight feet in height, and clothed with light green broadly lanceolate leaves, serrated at the ges. "In cultivation in Tasmania it becomes a very pretty round-headed shrub, whose flowers e succeeded by blue fruit. In our gardens it forms a neat bush, loaded with a profusion of white owers, as large as those of hawthorn, and spotted with purple." It bloomed in one of the greenuses of the Horticultural Society's Gardens last May, and is there grown in a sandy peat soil, ıd copiously watered whilst developing new shoots. "Mr. Gunn says that the plant is called in e colony 'Mangrove,' and is very common in the sand close to the sea, where it grows in comny with *Acacia Sophora* and *Leucopogon Richei.*" *Bot. Reg.* 15.

Onci′dium bicallo′sum. Introduced by Mr. Skinner from Guatemala, to the collections at oburn Abbey and at Knypersley. It has been described by Dr. Lindley as a species distinct om, but bearing a close relationship to *O. Cavendishianum.* Sir W. Hooker considers "the o as forms of one and the same kind, and that the species is liable to considerable variation; the ore especially as our *O. pachyphyllum,* Bot. Mag., 307, is considered by Dr. Lindley a state of *Cavendishianum.* To me," he adds, "our present plant seems to correspond better with Mr. ateman's original figure of *O. Cavendishianum,* than our *O. pachyphyllum* does." (There ırdly appears more difference in the three, than may be seen in many other species of Orchiceæ. In an ornamental view, one of them is quite sufficient in an ordinary collection; the esent, however, is the best.) *Bot. Mag.,* 4148.

Ornitho′galum margina′tum. Approaching *O. refractum* and *exscapum,* but both those ecies have a white stripe in the middle of their leaves, which do not appear to be white-edged in this. It was given to the Horticultural Society by the Dean of Manchester, who had the ılb from a correspondent. It was gathered on the Asiatic side of the Bosphorus. In a dry uation it will probably be hardy. The flowers appear in March and April, and the plant arcely reaches a foot high. *Bot. Reg.* 21.

Pentste′mon gentiano′ides *var.* dia′phanum. From the original *P. gentianoides* the present riety differs in bearing flowers of a rather larger size, "and almost colourless on the under le of the tube, which is moreover so thin as to be semi-transparent, and to allow the filaments be perceived through it. The calyx, too, is much more covered with glands than in the true *ntianoides.* The latter has by some dealers been called *suffruticosum,* a preposterous name, ıd calculated to mislead; for it is not more suffruticose than half the common herbaceous ants in cultivation." It is also found under the name of *P. grandiflorum,* which is quite a different ecies. "This is a very handsome and nearly hardy perennial, growing two or three feet high any good rich garden soil, and becoming rather woody next the ground. It flowers freely from ıly to September, and, like most of the Mexican species, is easily increased, either by seeds, or ıttings of the half-ripened shoots. It is no garden variety, but was raised from seeds received om G. F. Dickson, marked from the Tierra Fria of Mexico." (In the notice from which the ove is abstracted, the variety is also called *transparens,* perhaps inadvertently.) *Bot. Reg.* 16.

Phædranassa chloracra. "One of the curious bulbs met with by Mr. Hartweg in Peru. It curred on rocks at the village of Saragura, near Loxa, at an elevation of about 9000 feet above e sea, and was supposed to be the long-sought *Hæmanthus dubius* of Humboldt and Kunth. It ıs removed from *Hæmanthus* and stationed in *Phycella,* by the Dean of Manchester. The amination of fresh flowers has, however, showed that it constitutes a peculiar genus, to which r. Herbert has given the name of *Phædranassa* (it is to be presumed from *phaidros* gay, and *ıassa* queen). He regards it as an approach to *Stenomesson* and *Pentlandia.*" The *Phycella tusa* is another species of *Phædranassa,* also discovered by Mr. Hartweg, "on the arid banks the river Guallabamba, in the valley of San Antonio, in the province of Quito, at an elevation about 7000 feet above the level of the sea. As this was the place where Humboldt and Bonand found their *Hæmanthus dubius,* it is not improbable that it is of *P. obtusa* rather than of *loracra* that this plant is a synonym." Both species are greenhouse bulbs, flowering in winter d spring before the leaves appear. The flowers are between two and three inches long, of a ddish hue tipped with green, and have a drooping direction: they form an umbel at the top of tolerably stout scape. *Bot. Reg.,* 17.

Ruellia lilacina. Presented by Mr. Glendinning to the Botanic Gardens at Kew, where receives stove culture. Nothing is known of its native country. "Its fine dark and glos foliage, with large full lilac flowers, which are produced from time to time during the grea part of the summer months, renders it well worthy of a place in the hot-house." At Kew it for a branching shrub between two and three feet high, with ovate, bluntly acuminate leaves, a axillary flowers, consisting of a long curved funnel-shaped tube, and a spreading five-cleft limb a purple lilac colour, and traversed with veins. *Bot. Mag.*, 4147.

Spathoglottis Fortuni. "One of the first plants which Mr. Fortune met with, on t granitic mountains of Hong Kong, was this pretty little *Bletia*-like plant. Some corms which sent home in his first despatch to the Chiswick Garden, produced flowers, which lasted upwards of a month." Like the *Bletias*, it has thin plaited leaves, and fleshy tubers or corr which lie dormant for some months after the foliage has disappeared. The genus, indeed, diff from *Bletia* principally in having the middle lobe of the lip stalked, with some deep plates at t base, and in its anther having but two cells instead of eight. The flowers are produced near t summit of a scape, about a foot or eighteen inches long, and are of a pretty yellow colour, t interior portion of the side lobes of the lip being spotted with brownish crimson. The sepals a petals are broad, and spread out equally, forming with the lip a very compact flower. It appe that the genus contains three other species very similar to this in their general appearance a yellow flowers—*S. pubescens* from the Sylhet mountains, at Prome, and on the Avan mount called Tong Dong; another from the Khoseea-hills, which Dr. Lindley calls *S. parviflora*, a the third, called *S. tomentosa* by the same botanist, was gathered by Mr. Cuming on Mindan in the province of Miscamis, with as many as twenty flowers in a raceme. "If any are possess of a Manilla *Spathoglottis* resembling *S. plicata* or *Paxtonia rosea* in herbage, they wo do well to take care of it, for it may be this *S. tomentosa*, which seems to be really a fine thin *Bot. Reg.*, 19.

Whitfie'ldia lateri'tia. A fine Acanth, with brick-coloured flowers opening in the win months. It has copious evergreen foliage, and makes a desirable stove plant. Blossoms ha been produced abundantly on plants at Knowsley and Kew. *Bot. Mag.*, 4155.

NEW OR INTERESTING PLANTS RECENTLY FLOWERED IN THE PRINCIPAL METROPOLITA NURSERIES AND GARDENS.

Came'llia japo'nica, *var.* Low's Jubilee. We notice this new seedling chiefly on acco of the enormous size of the flowers—in this respect they rival those of *C. reticulata* (being f five inches in diameter), and excel it in the form, arrangement, and number of the petals, wh are tinted with a fine, delicate blush-pink, and, for the most part, have a small streak of a dee hue down the middle. It was raised and flowered in Mr. Low's nursery at Clapton. Am other seedlings flowering in the same collection, there is one of considerable merit, remarka for its broad leaves, and their very prominent venations. It is called "*centifolia*" (Low's), allusion to the resemblance of its rosy-crimson flowers to the cabbage-rose.

Erioste'mon interme'dium. Messrs. Henderson have a small plant flowering in a gre house at the Pine-apple Place Nursery, which was received some time ago from the Contin with the name here applied. It is a stout-growing plant, with handsome, oblong, lance-sha foliage, and large pale blush-coloured blossoms. The habit is intermediate betw *E. cuspidatum* and *E. buxifolium*, inclining more to the latter.

Fu'chsia serratifo'lia. A newly introduced species of great beauty, with long, tubu flowers, of a shaded carmine hue, the points of the calyx divisions of a very bright grass gre and the corolla consisting of rich scarlet petals. The blossoms are axillary. In habit it appe to be a rather stout plant; the leaves are large, obovate, with a drawn out point, and a sati looking surface. Messrs. Veitch and Sons received it from their collector at Muna in Peru.

Porphyroco'me lanceola'ta. At the first April meeting of the Horticultural Society, a n plant, sent from the Kew Gardens, was exhibited under this title. It is evidently closely rela to *Aphelandra*, and is a very pretty stove shrub, with long, drooping leaves, and pale vio blossoms emerging from a terminal spicate cluster of crisped reddish-coloured bracts.

OPERATIONS FOR MAY.

Again the cheerful month of May is ushered in, and the gardens and fields begin to teem ith all the verdancy and glowing tints of their floral treasures. The occasional returns of frost, hich so frequently intercept and obstruct the stream of vegetable activity, are now once more on e eve of final departure for the season, and gradually abating in the force of their attacks. But ough their severity is tempered, and less frequently experienced through the increasing power the sun, the susceptibility of plants to receive harm from them is at the same time so much eater, that they are really more to be feared and more strenuously to be warded off now than e fiercer frosts of former months.

Another thing by which a hurtful depression of temperature becomes more truly the enemy the culturist at the present advanced season, is the necessity which now exists for removing so any of the plants hitherto protected in glass-houses and frames to the open air, in order to ford room for carrying on successfully the ordinary operations of summer. It will therefore be matter of absolute necessity for him to provide himself with some convenient portable fabric, ch as mats or canvas, to throw over them when a likelihood of such recurrence appears. Furshed with these, he may at once proceed to transplant to their summer quarters many of the ore hardy amongst the plants for the flower-garden. They will thus be obtaining root-hold in e soil, and hence will more speedily cover the beds and expand flowers ; whilst they may easily protected from the slight casual spring frosts by the means just alluded to. Perhaps, where ere is an amplitude of room in frames and low houses, healthy strong plants, and an earlier oom may be induced by allowing them to enjoy these receptacles till the end of the month or mmencement of June, observing in the meanwhile to furnish them with sufficient pot-room for e roots to extend, and encourage to the full their respective growing capacities ; but it must be membered that this plan will entail an enormous increase of labour and attention, both in tting and repotting, watering and daily care, and also in the operation of transplanting, when e period at last arrives. This extra labour will bear no comparison with the little required for e occasional covering and uncovering of the beds ; and therefore, unless the culturist has nple leisure and convenience, we would advise the less delicate things to be immediately transrred to the parterre. This must not be considered discrepant with the recommendations of last onth : it is essential to pot off and encourage young plants in April ; but to continue the actice much longer would demand more space and time than can generally be afforded.

If any of the arrangements or preparatory operations for planting out are yet incomplete, no rther procrastination must be indulged in ; for it is now high time to have everything in adiness. We may here advert to a current mistake in the preparation of flower-beds for otics, most disastrous in its consequences, which cultivators nevertheless adhere to very tensively : we allude to the practice of gorging them indiscriminately with dung, as though it ere an unfailing panacea for every species of weakness or sickliness. The very contrary is often e real result of the case ; and instead of dung improving the aspect, it is the very parent by hich an unhealthy habit is engendered. In other instances it cherishes a plethoric disposition, d is hence inimical to the production of flowers. The character of the plant, and the constitun of the soil, must both be taken into consideration. As a general rule, we would propose less depth of soil than commonly exists, and the securance of a permeable subsoil, especially e latter, when dung is employed. The soil must neither be too open, nor yet very adhesive ; d wherever such extremes exist, unless some remedial measures are applied, success can only sult under a corresponding extreme in the state of the weather during the season. Manure ay usually be applied successfully to those plants which are ordinarily most prodigal of their ossoms, with a continued development of them. When the reverse appears, or the flowers are nerally not shown till late in the season, it should be avoided.

Besides attention to these considerations, there is the disposal of the different kinds of plants their several stations, so as to realise the most effective mingling of colours ; and in doing this, yond the arrangement of colours, the planter should contrive, as much as possible, to select for ch kind of plant the situation most favourable to its success : for instance, some plants, as the *emophila*, love a shady place ; others, as the scarlet *Pelargonium*, revel in the brightest beams light ; some are so tender or brittle as to wither, or be snapped asunder by a moderate blast ;

whilst others again are little scathed by a fiercer storm : hence the sheltered and the mo exposed places should be apportioned according to the constitution of the individual.

Considerable protection is afforded to tender exotics, when first planted out in spring, by M Edmonds' system of planting the beds in March or April with Pansies (common sorts, see p. 1 vol. xi.) leaving room for the insertion of the former in May, and as they advance in grow gradually removing the Pansies. In such a season as the spring of 1844, or during the cas occurrence of keen drying winds, so fatal to tender border-plants, the utility of this practice very sensibly apparent ; and if the borders are properly drained, no evil will result from it i wet season. Towards the end of the month, the Pansies will need reducing and trimming, to ke them from overspreading and choking up the after-occupants.

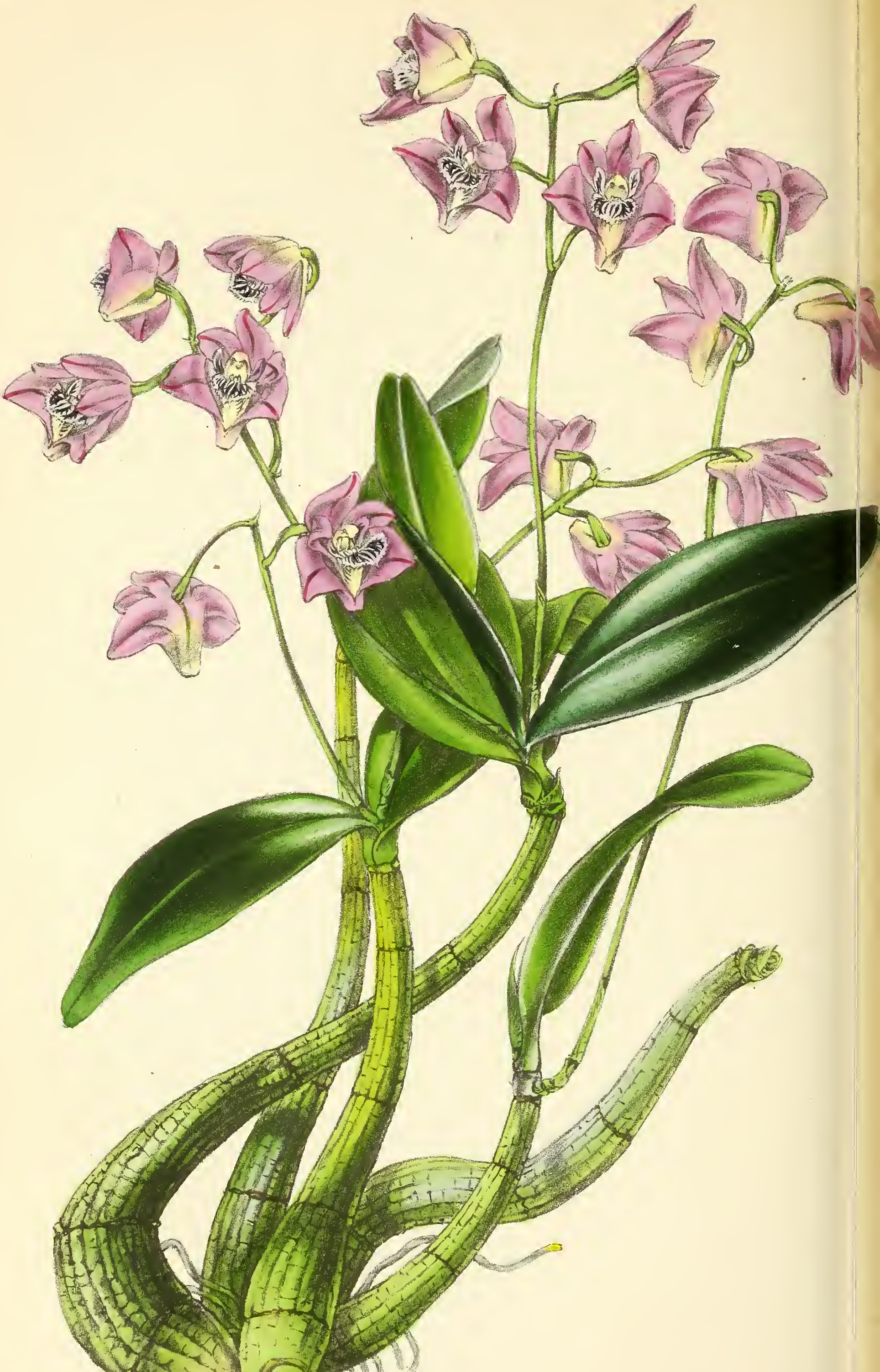
In planting Dahlias, and other tuberous-rooted plants, a place should be provided for t future reception of stakes, by inserting a peg of a similar thickness, and about a foot long, besi the plant. By this means the injury resulting from the splitting of the tubers in staking, whi so frequently occurs when no precaution of the kind is taken, is entirely prevented.

A source of much after trouble and vexation is often thoughtlessly suffered to arise allowing rank weeds to remain and flower in retired parts of the grounds, amongst the shrubber and other back places, from whence they diffuse their seeds around on every side, and cre tenfold more labour in removing their offspring, than a timely eradication of the first would ha demanded. Economy is always better studied in preventing, than by first permitting and th removing ; and weeding can never be said to be more than half done, if it be confined to t flower-beds, instead of extending to the contiguous sources from which their seeds are supplied

A very injudicious system obtains largely of emptying the greenhouses of the chief part their occupants towards the latter part of this month, under an impression that the plants benefited by it. Nothing can be more erroneous ; and we think a little reflection and careful obs vation, will speedily convince those who are not too much wedded by prejudice to the practice, t it is opposed to the very nature of things. It may not be so apparent in some of the more rob species ; but when we come to deal so with the more delicate kinds, we find the injury in inconfutable and undisguised form. At this time plants are making new shoots, which hence immature and tender, and need a corresponding share of protection from adve influences, to enable them to continue in health and vigorous extension. But if they removed to the open air they have to combat all the vicissitudes of our varying clime; a hence it depends on the hardihood of their constitution, or the occasional favourableness of season, whether they retain the garb of health or not. It will be more judicious, therefore, defer their removal till a later period, when the tide of growth will be somewhat abated and shoots progressing towards a mature state.

Whilst, however, we would keep those plants in the houses for some time yet, that designed for specimens, it should be borne in mind that the houses ought not to be crowded with more plants than they can conveniently contain. Each plant should stand free from neighbour. And now that they are growing fast, although it may be advisable to be m sparing of ventilation during the day than is commonly practised ; yet it is equally beneficial step aside from the common way, and keep the house cool during the night, by allowing sashes to remain partially unclosed till a late hour ; and, if it can be done without danger frost, wind, or heavy rain, they need not be entirely closed throughout the night. Shutting early in the afternoon with a view to economising heat, is acting the miser's part, and defeats purpose by causing an unnatural attenuation of the shoots. It increases their length but their strength.

Greenhouse plants, as well as stove-plants, should now be syringed daily in bright weath and a damp atmosphere created by dashing water on the paths. Neither of these practi should be performed late in the day. The general directions last month relating to the st and orchidaceous house will apply with equal propriety to this. In both structures, and also the greenhouse, shade will be requisite in sunny weather. Cleanliness and order must prev throughout ; dead leaves and flowers immediately removed ; measures employed to suppr insects ; plants staked and tied as they require it, and a bushy habit preserved by stopping b the shoots of those plants that display a disposition to straggle. Bulbs and annuals that h done flowering or are growing shabby, should be discarded. Repot Chrysanthemums as t want it.



S. Holden, del & Lith.

Dendrobium Kingianum.

DENDRÒBIUM KINGIÀNUM.

(Captain King's Dendrobium.)

Class.
GYNANDRIA.

Order.
MONANDRIA.

Natural Order.
ORCHIDACEÆ.

Generic Character.—*Sepals* membranaceous, erect, spreading; lateral ones largest, connate with the lumn at the base. *Petals* often much larger than e sepals, sometimes smaller, always membranaceous. *abellum* jointed or connate with the foot of the lumn, always sessile, undivided or three-lobed, comonly membranaceous, sometimes appendiculate. *lumn* semi-cylindrical, much prolonged at the base. *nthers* two-celled. *Pollen-masses* four.

Specific Character.—*Plant* an epiphyte. *Pseudobulbs* ovate at base, extending into a long neck, with two or three leaves at the apex. *Leaves* elliptic-oblong, emarginate. *Peduncles* terminal, four or five-flowered, rather longer than the leaves. *Sepals* ovate, acute. *Petals* obovate, acute, smaller than the sepals. *Lip* three-lobed, pubescent; lateral segments acute; intermediate one a little longer, with an acute point at the end, and two lateral angles somewhat rounded; surface with three elevated lines along the middle.

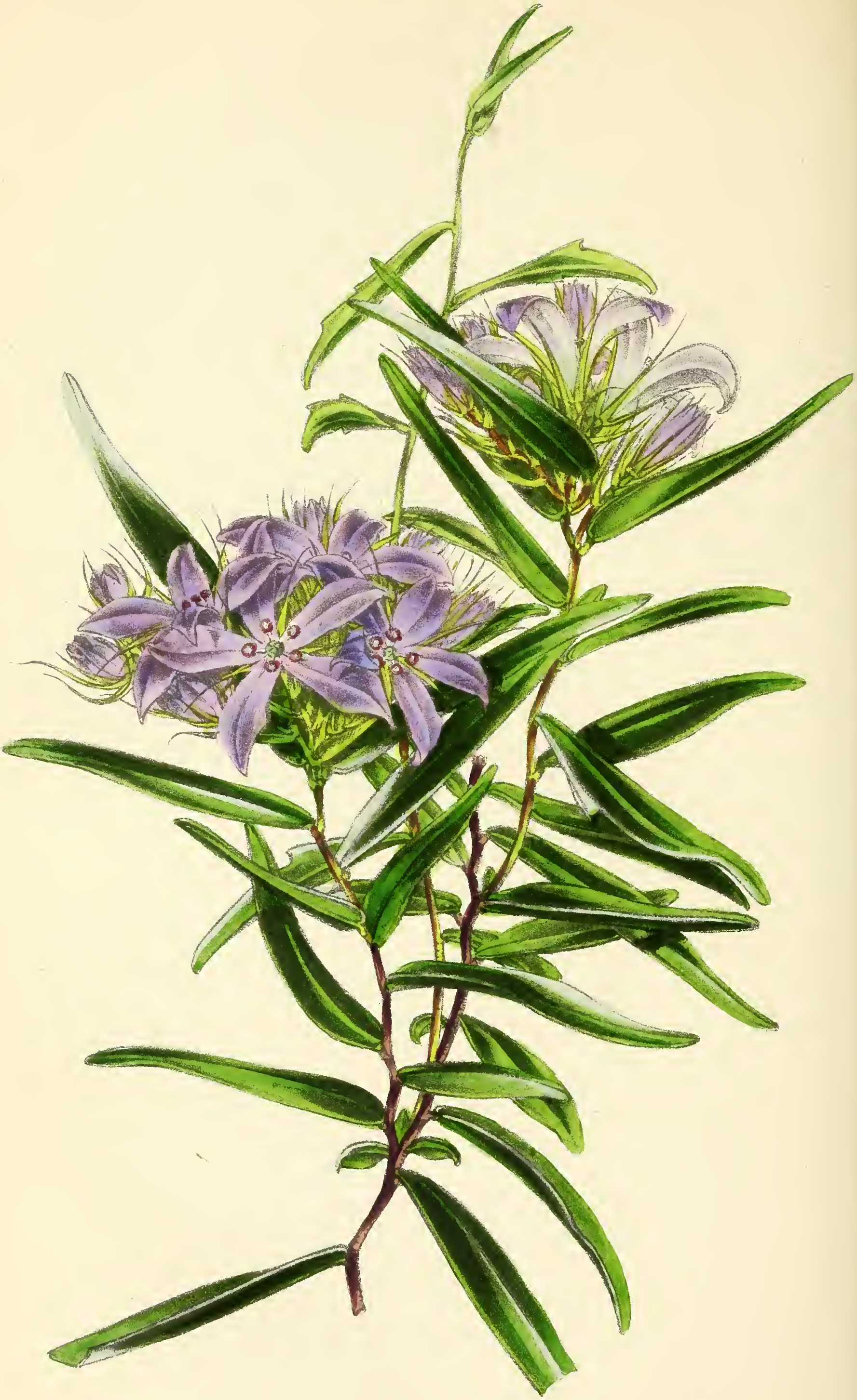
Besides the large flowering species of Dendrobia, which we have chiefly lected for our previous illustrations of the genus, there remain a vast number of ecies with much smaller blossoms, and which are hence less gorgeous and striking their appearance. Many of these, nevertheless, are scarcely less charming than eir more gaudy congeners, and will bear an equally attentive inspection. From nong them we have chosen the present, partly on account of the interest which invariably attached to anything novel, but more for its own intrinsic loveliness.

For its introduction we are indebted to Mr. Bidwill, who obtained specimens o or three years ago in New Holland. A large mass of the pseudo-bulbs were rchased at the sale of that gentleman's collection, by the Messrs. Loddiges, of ackney, in whose nursery a few flowers were produced in 1844. In February the present year, the character and beauty of the species were more fully vealed, by a copious display of blossom, and through the additional vigour and alth which the plants had acquired since the former period; and being favoured th the permission of Messrs. Loddiges, we accordingly had the accompanying ure prepared.

In this species we are presented with the same character which has been preusly noticed in other New Holland kinds, of a pseudo-bulbous stem, crowned th a few leathery leaves, and elongating in the form of a spike of flowers; a niliar instance of which is afforded in *D. speciosum*. Our plant, however, is by means possessed of the huge size and stoutness for which *D. speciosum* is remarkable ; on the contrary, it is comparatively rather diminutive,—the pseud bulbs seldom exceeding a few inches in length. On Messrs. Loddiges' plants th form an extremely crowded mass, and appear as if they had been squeez together. This enables the flowers, which are rather loosely arranged, and only few on each spike, to make a more showy appearance than might be imagin from an individual pseudo-bulb. The lively markings of the lip are particular engaging.

The New Holland Dendrobia flourish in less heat than is demanded by t major part of other species, and this renders them more suitable for transferring the drawing-room whilst the flowers are expanded. The present, moreover, especially adapted for the purpose, from its size and appropriateness for basket pot culture; but, if suspended, it should be in a low situation, where it may readily viewed. It will probably succeed in a greenhouse ; till this be ascertain however, it will be advisable to consider it as a denizen of the intermediate hou

The specific name was bestowed in compliment to Captain King, R. N., w commanded the expedition for the survey of the Straits of Magalhaens, &c., 1826.



S. Holden del & Lith

Pronaya elegans.

PRONÀYA ÉLEGANS.

(Elegant Pronaya.)

Class.
PENTANDRIA.

Order.
MONOGYNIA.

Natural Order.
PITTOSPORÀCEÆ.

ENERIC CHARACTER. — *Calyx* five-leaved; leaflets
ulate, equal. *Corolla* of five petals, hypogynous,
ernating with the leaflets of the calyx, ovate or
vate, sub-sessile, or with a short claw, connivent
ow, subrotately spreading. *Stamens* five, hypogynous,
ernating with the petals, erectly spreading. *Fila-*
nts subulately thread-shaped. *Anthers* turned in-
rds, two-celled, oblong; apex revolute, dehiscing
gitudinally. *Ovary* elliptically-cylindrical, two-
led. *Ovules* several in each cell, in two rows on
h side of the dissepiments, anatropous. *Style* short,
aight. *Stigma* obsoletely emarginate *Berry* coria-
usly fleshy, cylindrical, muticate, two-celled. *Seeds*
nerous in each cell, imbedded in a resinous pulp, nearly globose, or angular. *Embryo* placed near the umbilicus, in a hardened albumen, orthotropous.

SPECIFIC CHARACTER. — *Plant* a suffruticose evergreen. *Branches* slender, climbing, somewhat woody, smooth. *Leaves* nearly sessile, alternate, oblong-linear, entire, or with two or three deep indentures on each side, somewhat reticulately veined; margins revolute, glabrous above, covered with very short and closely adpressed hairs on the under surface. *Peduncles* short, at the top of the shoots, solitary. *Cymes* ditrichotomous. *Flowers* numerous, blue.

SYNONYMES.—*Spiranthèra Fràseri; Campylanthèra Fràseri; Billardièra rosmarinifolia.*

THIS elegant little greenhouse plant bears some resemblance in its general
ect to the *Marianthus cœruleo-punctatus.* It is a smooth twining plant, but of
ess tenuous and less rambling growth, producing its leaves at shorter intervals,
d having the flowers more compactly aggregated. In healthy plants, the latter
plenteously developed, and have a peculiarly neat and attractive mien. From
s dwarfness of habit, and the pleasing and long-lasting inflorescence, it makes
of the most desirable of plants for a small greenhouse.

Speaking of it under the name of the *Campylanthera Fraseri,* Sir William J.
ooker, in his "Icones Plantarum," says, "This is noticed by Mr. Fraser as a
utiful creeper, as indeed it may well be with its copious corymbs of azure
wers. It will be at once seen that it bears a close affinity to *Billardiera,*
llya, and *Cheiranthera,* among the Pittospora, differing from the first in its
lorescence, spreading petals, and spirally curved anthers; from the second, in
last-mentioned character, and in having anthers not opening by pores; and
m the third in the different direction of the stamens, and fleshy or pulpy fruit."

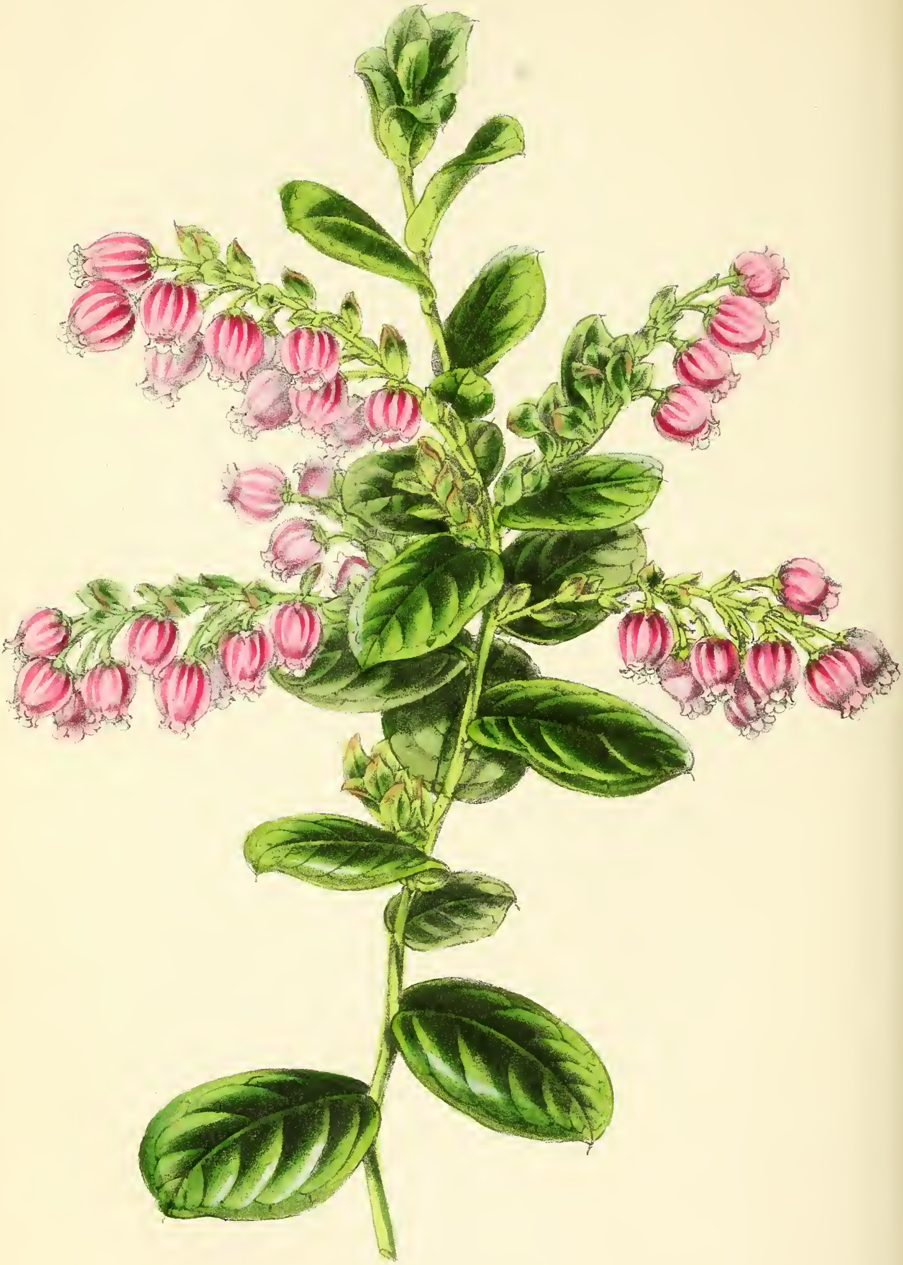
The name we have adopted is that bestowed by Hugel, and under which alone,
believe, it is known in the gardens of this country. It is a product of the
stern coast of New Holland, and was first discovered by Mr. Fraser, growing
ntifully about the Swan River settlement, from whence it was originally

forwarded to England in 1837. At Messrs. Knight and Perry's nursery, Chelse where our drawing was executed last August, it was received from the establis ment of M. Makoy, at Liege.

To treat it in a manner suitable to its habit, and at the same time to produc the best effect from its clustered blossoms, it should be trained spirally round pyramidal trellis, or one partially contracting towards the top ; observing to ado one of proportionate dimensions to its scanty growth, and not to attach th branches with that rigorous formality too commonly persevered in ; and, especiall towards the upper part of the plant, the shoots should be allowed greater liberty.

Cuttings planted in sand, and placed in a gentle heat, with a confine atmosphere, are the ordinary means of propagation. Young plants flourish we in frames, potted in the usual mixture of peat, loam, and leaf-mould. Care mu be taken that they are not over-potted, as a very circumscribed space is sufficie for the roots.

Baron Segismund Pronay, a Hungarian nobleman, and a patron of hort culture, at Hetzendorf, near Vienna, and afterwards at Frankfort-on-the-May is commemorated in the generic appellation.



S Holden del & Lith

Gaylussacia pseudo-vaccineum.

GAYLUSSÀCIA PSÈUDO-VACCÍNIUM.

(Bilberry-like Gaylussac-wort.)

Class.
PENTANDRIA.

Order.
MONOGYNIA.

Natural Order.
VACCINĀCEÆ.

Generic Character. — *Limb* of *Calyx* five-cleft. *rolla* tubular, ventricose at the base; limb five-othed. *Stamens* ten, inserted in the limb of the lyx, inclosed; anthers mutic, drawn out from the p into two little tubes. *Style* erect. *Stigma* depresdly capitate. *Drupe* nearly globose, clothed by the lyx, ten-celled. *Cells* one-seeded. *Seeds* lenticular, ooth.—*Don's Gardening and Botany.*

Specific Character. —*Plant* an evergreen shrub, downy or smooth. *Leaves* elliptic-lanceolate, obsoletely serrated towards the top, with a few ciliæ at the base of the younger leaves. *Racemes* axillary, erect, secund, bracteate, of a fine crimson colour. *Corolla* cylindrically urceolate, crimson. *Calyx* teeth roundish, acuminated. *Ovarium* glabrous.

Synonymes. — *Andromeda coccinea; Vaccinium brasiliense.*

Under the above generic title, twenty-six species of *Vaccinium*—or *Andromeda*-ke shrubs are enumerated by Steudel in his excellent "Nomenclator Botanicus," any of which, yet unintroduced, if we may judge from description would be luable acquisitions to our collections of ornamental plants. "The genus," says r. Lindley, "differs from *Vaccinium* in the same way as *Arctostaphylos* from *rbutus*—it has but a single seed in each cell. The species are chiefly found in razil, where they are common, Peru, and the North of India." *Thibaudia*, other nearly-allied genus, is distinguished by its five-celled berry, each cell conining many seeds.

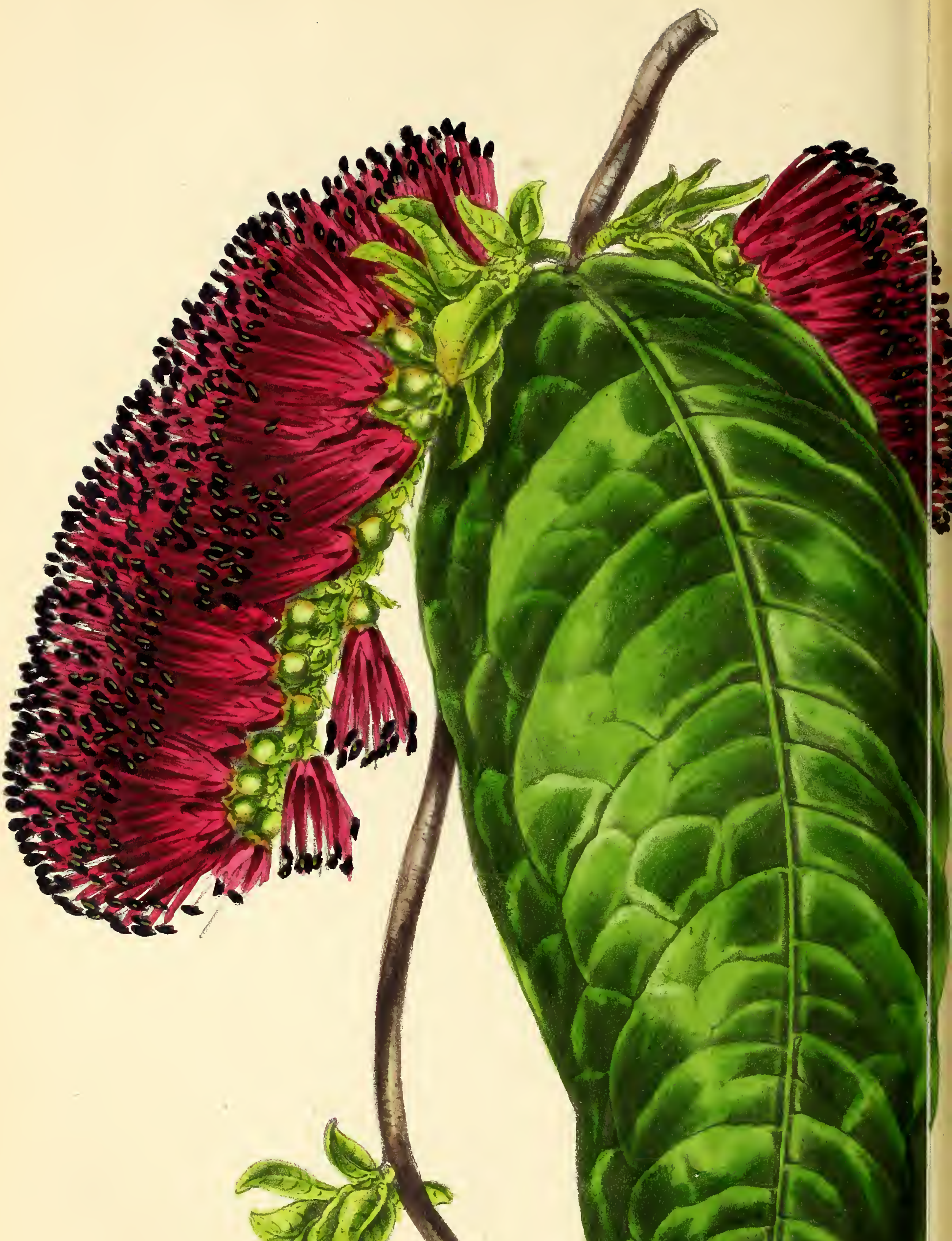
G. pseudo-vaccinium is one of those hard-wooded greenhouse plants with fine ossy green foliage, which contribute so much to the maintenance of interest in ant-houses during winter. Between April and June, it produces copious quanties of somewhat globular bright crimson blossoms, disposed in racemes nestled nongst the leaves, but protruding beyond them, and all turned to one side. In s native localities, it forms a spreading shrub, varying in height from one to two et and a half; so that, in this country, we may at least expect it to reach from ghteen inches to two feet. A handsome specimen, which flowered with Messrs. oddiges last year, and from which we were kindly permitted to make the annexed presentation, was exhibited at the May meeting in the gardens of the Hortiltural Society, at Chiswick.

It is a native of Brazil within the tropics, where it grows in open sandy ains. It was discovered by Auguste de St. Hilaire, near the town of Caravellos, in the province of Espirito Santo, and extending along the coast as far as tl island of Santa Catharina. In England, it was first produced at the Hackne Nursery, by the Messrs. Loddiges, from seeds gathered in Brazil, and forwarded them three or four years ago by Mr. Russell, a friend residing there. It has sin been received by Messrs. Knight and Perry from the Belgian Gardens.

The plant prefers a soil of a peaty nature, which should, if possible, selected of a medium texture—neither very close, nor very porous. The extremes may be partly corrected by adding either leaf-mould, to keep it loose, a portion of loam, to render it more adhesive. A rather liberal quantity of wat is necessary to keep it in health whilst forming fresh growths ; and the earth mu never be permitted to become very dry.

It is readily multiplied by layering the branches immediately before the ne shoots begin to form.

The genus was named by Humboldt, Bonpland, and Kunth, in honour M. L. Gay Lussac, a celebrated French philosopher and chemist, and a memb of the Academy of Sciences, at Paris.



S Holden, del & Lith.

Combretum latifolium

COMBRÈTUM LATIFÒLIUM.

(Broad-leaved Combretum.)

Class.
OCTO-DECANDRIA.

Order.
MONOGYNIA.

Natural Order.
COMBRETÀCEÆ.

ENERIC CHARACTER. — *Calyx* with a four or five-thed deciduous limb. *Petals* four or five, inserted he top of the calyx. *Stamens* eight or ten, exserted. *ries* from two to five, ovulate. *Style* filiform. *Fruit* r or five-winged. *Seed* one, pendulous. — *Don's rdening and Botany.*

PECIFIC CHARACTER.—*Plant* an evergreen shrub. *Stems* climbing, glabrous. *Leaves* ample, coriaceous, oblong, acuminated, sometimes rounded. *Spikes* short, crowded with flowers. *Flowers* small, red. *Calyxes* pubescent. *Petals* five, obovate, obtuse. *Stamens* ten, twice the length of the calyx.

SYNONYME.—*C. macrophyllum.*

Combretum is an extensive genus of climbing plants, the species of which are scribed by botanists as "among the most splendid of the climbing plants of the pics, adorning the trees from which they hang with garlands of white, crimson, d yellow flowers." Few plants, indeed, surpass those already introduced in the gance and brilliancy of their blossoms; and yet, some of those that remain e said to be far superior in splendour. Undoubtedly, many of them would prove eminent service in our stoves; and we hope that ere long some botanical veller will be fortunate enough to transmit a few of the most deserving to this untry.

We are not aware of the existence of a previous figure of the present fine ecies, which has flowered most abundantly at Messrs. Henderson's Nursery, neapple-place, and in the magnificent collection of Mrs. Lawrence, at Ealing rk. It is evidently identical with the *C. latifolium* of Don in the "Linnæan ansactions," and the *C. macrophyllum* of Roxburgh in the "Hortus Bengalensis." is an East Indian species, but at what precise period it was introduced to ngland we are not informed. Our drawing was procured from Messrs. Hender-n's plant in May, 1844.

In the general appearance of the inflorescence, there is a striking resemblance tween this species and *C. grandiflorum;* but a comparison of the two reveals veral essential distinctions. The flower-spikes of the present kind are shorter, d broader in proportion to their length; the stamens, moreover, are not so long. e plant is altogether of a much stouter habit, and is remarkable for the large mensions of the foliage. We were at first inclined to regard it as a shy flowering plant; but further acquaintance with it has fully shown us, that such only the case when it is imperfectly supplied with the means of growth.

For covering a trellis in the back of a stove, or training round a pillar, appears to be peculiarly well adapted, from the amplitude and beauty of i foliage, which will show to much greater advantage in such a situation than if t branches are trained under a rafter. To realise the true character of the species, should be planted in a warm border, or roomy compartment, where the roots c ramble more freely than in a pot. When the roots are cramped and confin within a small space, flowers are only scantily developed. A rich loamy eart prepared from the surface of a pasture-field, mixed with a portion of decayi leaves, to prevent the particles from running too closely together, makes a favou able compost. It may or may not have an addition of peat earth.

Cuttings planted in sand, with a moist bottom-heat, take root with tolerab freedom.

BOTTOM HEAT.

HAVING devoted some of the previous pages to the subjects of Heat and Light ithin the area of glass erections, we find it necessary to solicit the attention of ur readers to other important subjects which have been brought within our otice since the publication of the last number.

Bottom-heat has been considered as essential ever since the introduction of nder exotics to our gardens; at one time, that is about the beginning of the resent century, every hothouse plant, excepting those of the succulent tribes, as not only propagated, but kept plunged to the rim of its pot in a deep bed of nner's bark; and there it certainly prospered. But the cause, the philosophy f the luxuriant effects produced did not then enter into the speculation of the ltivator: at length, however, certain inconveniences became manifest; roots ere rapidly formed, which, after filling and meandering in the pot, found a passage rough the drainage hole at its bottom, and passed into the tan bed. Frequent emovals and shiftings were required, and these tended to disturb and give a eck, which neutralized the good effects of the previous treatment. Bottom-heat as therefore abandoned as an appliance of general hothouse culture, and the ardener, by substituting simple atmospheric heat and moisture, ran into the pposite extreme.

Whatever may be said, *pro* or *con*, for the practice of plunging a rooted plant, we say nothing here of propagation,) the admission must be claimed, that a vast eal is gained by surrounding a pot with some moist material; because it is quite ertain that tender roots are seriously injured by aridity of soil; and many a plant, onfined within a pot which has been thoroughly heated and dried by a parching n, is seen to perish without chance of recovery. There are inconveniences in ll things, and trouble attaches to all operations; but we shall never bring floriulture to anything like perfection, till we can *safely* provide our potted plants ith some substitute for a bed of earth. The fact is proved by the luxuriance hich invariably is produced by transferring to borders and parterres those plants at decorate our summer gardens.

We now come to the subject which has dictated the present article. Since the ide adoption of the hot-water tank system, we had flattered ourselves that ottom-heat, of the safest and most genial character, was absolutely at command; hat not only might we propagate, by cuttings, with assured success, but supply a egree of atmospheric moisture so regulated as to obviate injurious aridity of oil. But within a very short period doubts have been raised concerning the alubrity of the tank, and we are now credibly informed by those who should know he fact, (namely, the tanners themselves,) that gardeners, some at least, are ecurring to the tan bed as a medium of heat, a substitute for the water-tank

As yet we have not been able to collect materials of sufficient extent to leave

no doubt on the subject; but we have read and observed enough to authorise
few inquiries and suggestions. A good and efficient tank ought to comprise a
expansive pair of water-channels, one of which is connected with the "flow," th
other with the "return-pipe" of the furnace. These channels should be enclose
in a deep, oblong chamber of brick-work, so constructed as to contain an air
chamber, heated by radiation from the surfaces of slates laid sloping from the edge
of the water-channels, and expanding to the top course of the sides of the bric
walls, where they are joined by a broad, covering-slab of thick slate, upon the fou
flat edges of which a brim or border of bricks is placed. By this arrangement
space, the entire breadth of the slab, is obtained, capable of containing a body
materials wherein to plunge pots of various dimensions, either to their rims, or t
any extent which may suit the object of the gardener. Beside the heated dry a
obtained from the outer surface of the slates, and which can pass through pigeon
holes in the sides of the brick chamber into the air of the house, a body of vapou
can be conveyed from the hot-water channels through orifices made at the tw
ends of the brick case, which can be closed wholly or partially, according t
circumstances.

We have thus all the appliances of a well-regulated source of bottom-heat
but what are the materials which should constitute the plunging medium; and
heat or *temperature* the sole object worthy of consideration?

It has been stated that some gardeners who have tried the tank, are recurrin
to tan, or other *fermenting* sources of heat! Is this true in the abstract—and if
be, *why* is a medium ever subject to sudden mutations, substituted for another th
is comparatively permanent and certain in its effects? Again, let us consider t
inconveniences of tan, or of a bed of leaves covered with a layer of tan, or
compound of stable-dung and leaves. All of these are, in the first instance, liab
to heat violently; insomuch that whole collections of most valuable plants ha
been irremediably destroyed in a few hours. This degree of temperature decline
but not always regularly; it is influenced by atmospheric conditions; it fluctuate
becomes irregular—is lost; and even under the most propitious course, the b
subsides, requires renewal, is changed in its texture, and favours the production
worms, grubs, and myriads of devouring millepedes. On the contrary, if
superpose upon the slab of the water-tank a stratum of sand and powder
charcoal, to the depth of from five or six to seven or nine inches, and bring the
materials to the moist condition of tan, or of vegetative mould, we acquire
plunging medium perfectly at command with respect to temperature, ever clea
scarcely, if at all, liable to change; and by no means favourable to the introducti
of predatory vermin.

The question now presents itself at once; is this clean and convenient mediu
equal in every respect to that of the old fermenting bed; or does the latter surpa
in some qualities which give it essential pre-eminence?

Experience must decide, for the subject is quite new. In the mean time it ertain that, during every process of decay—(the result of fermentation)—gencies of prodigious power are exerted: water is decomposed, a galvanic energy displayed in the progressive development of the elements oxygen, hydrogen, itrogen, and in new combinations, forming hydro-carbons, carbonic acid, mmonia, &c., all essential to vegetation; and these facts, which now are placed eyond reasonable doubt, tend to repudiate the opinion that the efficiency of ottom-heat is dependent solely upon increase of temperature. In a word, we may afely infer that the process of radification is the result of electro-chemical ttraction, while *that* depends upon elemental disturbance.

So far, it will be evident that we are constrained to favour the old fermenting edium; but, alive as we must be to its inconveniences, we inquire whether the ew and cleanly bed resting over the tank would not suffice for all the processes of ropagation, and also to maintain the ample verdure and health of such rooted lants—as for instance, the *Gardenias*—which demand the appliance of moist and arm substances to the surface of their pots? Were charcoal-powder always mployed, with sand sufficient to give it texture and firmness, we have little doubt hat the roots would emerge, and revel in the bed; and no scalding or burning ould result from the violent extrication of ammoniacal gases. And although in he event of protruded roots, the luxuriance of vegetation might not equal that roduced by the tan or leaf bed, yet not only do gardeners object to this rooting or the reasons before assigned, but they ought on every account to prefer cleanness nd security, provided they are not purchased at the expense of a positive injury.

A tank alone will not be sufficient for hothouse or even pit culture; we must ave atmospheric moisture and heat; therefore from the returning channel or utter of the tank a connected pair must be continued in front, by the end, and enerally at the back of the erection, so as to convey the flow-water; and a corresponding "return" stream, till the latter terminate in the receiving pipe of the oiler; and then, if these channels be regulated by sluices across the watercourse, nd by sliders at the top, both correctly adapted and moveable, any degree of oisture may be commanded and regulated.

We now invite our intelligent readers to observe, and decide for themselves, or such are the conveniences of the hot-water tank-plunging system, that we hould regret extremely to see it abandoned for one which, for years, has been roductive of nuisances of the most serious character. A further remark, and that painful one, remains to be made; the *vapour of a tank-house* is not found to bear ut the assertion that it will afford ample protection against the Acarus, or plant-pider. We have very lately seen an entire collection of Gardenias the prey to housands of this pest; and now, as sulphur also is found utterly valueless, we ear that there is no remedial application, and that the gardener must trust to igilance alone.

ON PLANTS IN DRAWING-ROOMS AND PLANT-CASES, &

The removal of plants during the period of blooming, and especially many the grotesque yet beautiful tribe of orchidaceæ, to the drawing-room, has no become almost as fashionable as collecting a brilliant display of blossom in a gree house. Proprietors are thus enabled at any time to enjoy their favourites leisure and pleasantly, unattended by the inconveniences arising from bad weather, ar the detached and often distant situation of the plant-houses; and also from tl sometimes confined atmosphere, excessive heat, and insalubrious humidit maintained in them.

There is, however, some unpleasantness connected with it which it would l desirable to remove. That volatile matter yielded by many flowering plants, ar particularly orchidaceæ, which constitutes an agreeable fragance during the day, poured out from some species in such excessive streams at night, and whe confined in a close room proves not only disagreeable and inconvenient, but ac powerfully and banefully upon persons of delicate constitution. In fact it recorded on the authority of De Candolle, that even the little violet, so universal esteemed for its grateful odour, carries a noxious influence with it, which is overpowering that he has known ladies to faint from the mere circumstance carrying too many about their persons. The aroma emitted from some plants h been known to produce death; and there are few persons but can testify to tl oppression or languor experienced under the influence of odours that are agreeab when not too highly concentrated. With these facts, then, before us, furth argument scarcely need be adduced to convince of the expediency of some mo of mitigating or removing the baneful power; especially if it can be done witho affecting, but only modifying, the continuance of the present practice.

But even were other arguments needing, they are not wanting. There is disproportion between the atmosphere of the plant-houses and that of an ordinai sitting-room, which acts as injuriously on the constitution of the plant, as tl plant acts on the nerves of a delicate person. Supposing a plant at the time of i introduction to be in a free-growing state, the transition from the warm moi atmosphere of a stove to the comparatively dry air of a sitting-room, will be a to impose a check that may require some time to recover from. But we will n insist much upon this, as we are persuaded that much of it may be obviated by proper selection of plants, and by a preparatory treatment.

With a view to the better preservation of plants in a sitting-room, sever individuals have modified the construction of the Wardian cases into portab miniature greenhouses or plant cases, adapted for rooms. The original Wardia case is hermetically closed; those we allude to are provided with the means ventilation on the top, and with small side-doors for the same purpose, and allow the plants to be examined or removed at any time. Similar contrivanc ve been in use for some years on the Continent, but it is only recently that they ve been much employed in this country. To those who are fond of having a w plants constantly accessible to inspection, they will be an interesting and eful article, especially in towns. The plants will be preserved from any deposit dust on their leaves or flowers, the whole may be easily shifted about if cessary, their strong exhalations may be confined, or partially released at easure, and the humidity proper to the plants will be more under com- and.

From the simplicity of their construction, and the reduction in the price of ass, they will doubtless, ere long, be obtained at a trifling cost. Many of those, wever, which have come before us, are too plain to accord with a costly furnished awing-room: nevertheless, those exhibited last year at Chiswick, by Mr. Potts, Birmingham, seem to have left nothing to wish for further in that respect;— ey are really elegant, and elaborately finished.

In their formation small hooks or eyelets should be fastened in the top bars, so at orchidaceæ may be suspended. As it will also sometimes be needful to water e plants, a moveable bottom should be made for any excess to drain into, so that may be easily removed.

Some little taste will be requisite in the choice and arrangement of plants, so to blend the more slender and graceful growing kinds with those of stouter and ore erect habit; and to show their flowers to advantage. To aid in this, and at e same time to contribute more variety, a few Lycopodiums and some of the ore airy-looking ferns, may be mixed amongst those placed in the lower part.

There is little doubt but a small collection of the dwarfer species of Cape eaths—a tribe which perhaps suffers as much as any other in a dry room— ight be successfully grown in this way by those who cannot purchase the luxury f a greenhouse; at least, when we find that without such aid they will retain a lerable appearance, despite the heat of the room, we may reasonably expect that ey will exist and experience less injury, when they are no longer exposed to a ry air in conjunction with it.

But there are many plants which flower abundantly, that it will not be racticable to remove from the houses, but which would nevertheless furnish a ood supply of cut flowers for the drawing-room; and by proper care, and a few imple contrivances, these may be preserved perfect in beauty for a considerable ngth of time. The same atmospherical agencies which assist in lengthening the uration of blossoms on a growing plant, are essential to their preservation when ut and placed in the drawing-room, and *vice versâ*. Too much aridity soon estroys them, so does the opposite extreme. An agitated air, especially if a dry ne, such as we commonly have in a sitting-room, extracts moisture from them oo rapidly.

The remarks of Mrs. Loudon in her "Gardening for Ladies," recently ublished, are much to the purpose, and worth knowing. This lady says, "The most simple rules are, not to put too many flowers together in a glass, to chan the water every morning, and to remove every decayed leaf as soon as it appea cutting off the end of the stem occasionally as soon as it shows any symptoms decay. A more efficacious way, however, is to put nitrate of soda in the wate about as much as can be easily taken up between the forefinger and thumb, p into the glass every time the water is changed, will preserve cut flowers in all th beauty for above a fortnight. Nitrate of potash (that is, common saltpetre) powder, has nearly the same effects, but it is not quite so efficacious."

Whilst, however, the observations quoted embrace some of the principal poi for the preservation of cut flowers, the exclusion of a dry or disturbed air acti upon the flowers themselves, is perhaps more effectual in prolonging their beau It is preferable to *retard* the loss of fluid matter through insensible perspirati than to trust entirely to *supplying* that loss. For this purpose the Hopean sta and glass cover is a useful contrivance. These stands are now manufactured ornamented stone and china wares (similar to that employed for the new Hyacin pots) instead of japanned metal; and are not only equally effectual for t object intended, but more elegant ornaments in themselves. In conjunction wi the directions of Mrs. Loudon, this mode of excluding air will be found capable retaining flowers perfect for a much longer period than above stated;—a conside tion of some importance, where flowers are scarce, (especially during winter,) or keep blossoms of a rare kind as long as possible.

REMARKS ON THE CULTURE OF A FEW ORNAMENTA PLANTS.

In estimating the value of different plants in an ornamental light, we natural enough follow their mere appearance as they are oftenest found, without taki into consideration the ease or the difficulty of making them what they are; a whether there may or may not be a likelihood of benefiting them by supplyi common omissions in their routinal tendance; or varying some feature in th culture for one that would appear more feasible. Thus, if a grower supply hims with a miscellaneous collection of plants, comprising species of rapid growth wi soft shoots, and others of harder and more woody stems and increasing slowly size, and makes no difference in the way of treating them, he will rarely atta any excellence either with the one or the other; or it will be in proportion as h practice leans to the requirements of either of the two classes. And, moreover, demands less skill to manage a soft-wooded plant well, than it does to unfold t capabilities of a hard wooded, slow-growing kind; hence, we are more apt condemn the latter, when the fault really rests only in our own ignorance mismanagement.

From amongst many other plants of this kind, thus undeservedly depreciated, select the *Templetonia glauca* and *T. retusa*,—two spring flowering shrubs, rely cultivated in a satisfactory manner. In most places these plants have an healthy and stunted aspect, seldom advancing into vigorous growth, and their wer parts becoming divested of foliage; whilst if flowers are produced at all, eir numbers are too scanty to contribute much show. Now and then, however, meet with specimens exactly the converse in appearance, which fully redeem e claim of the plants to be regarded as shrubs of a showy character.

Examination will generally show that the specimens which appear so un-omising and sickly, are deficient of roots. Instead, therefore, of allowing such a e to continue in the greenhouse in the hope of improvement, it is better at once shake away the old soil from the roots, cut off all decayed extremities, and then urn it to a smaller pot, observing to pay special regard to drainage, and the ality of the earth. It may then be placed in a close frame; and when it begins grow, a portion of the old branches should be removed to assist the fresh owths in acquiring strength. Occasional syringing will be useful, and perhaps ading for an hour or two in the middle of sunny days. When the roots have led the pots, and the shoots are pushing well, the plant should be transferred to larger pot, unless the season is too far advanced to mature the wood before nter. They may be taken back to the greenhouse to winter, and the following ring they will flower abundantly.

The necessity of careful potting is clearly shown in these plants. Once any-ing obstructs the circulation of fluids through the ball, the roots begin to suffer. ence, although it is proper to elevate slightly the collar of the plant, yet it is as jurious to raise it so preposterously as many do. As a rule of general applica-ity, the highest portion of soil should be *beneath* the level of the rim of the pot, that at every watering the whole may be submersed. Otherwise all the roots the central portion of the pot will be left dry and useless. In the choice of il, many err in employing finely dressed peat. A good friable loam, with an ual quantity of coarse peat, answers far better. With care in potting, and in tering afterwards, a healthy state may be maintained constantly in a green-use: a little heat in spring, however, effects considerable improvement in their pearance.

But whilst they make very handsome bushes when kept in pots, they acquire far more excellent character when grown in a conservatory border; and from eir bushiness, and the total absence of anything like a tendency to grow feebly straggling, they are highly appropriate subjects for the situation. If through ltreatment they have lost anything of the needed density and foliage in the wer parts, there is usually a number of latent buds in the heart of the plants at are easily started into growth by merely bending over the main shoots to event them from receiving all the sap supplied from the roots.

Though by no means rapid growing plants, good specimens may be formed from cuttings in a few years by growing them through the summer in pits. Eith the young shoots taken off in spring as soon as they have acquired a little firmne or the fully matured wood in autumn, strike root with tolerable readiness. If is intended to employ the former, the plants from which they are to be tak should be early put into an extra warmth, in order to elongate the shoots; su cuttings soon take root with bottom heat. Ripened wood requires more time to fo roots, and should be planted in a cooler spot in autumn: the first is the m certain and least troublesome method.

The genus *Hardenbergia* contains species which are decidedly amongst t finest of all our rambling greenhouse plants when well cultivated. Like ma others, however, they are often more than half deprived of their beauty throu untasteful capricious ways of pruning and training. They are mostly fasten under the rafters of houses; and if the shoots are allowed plenty of liberty, su species as *H. monophylla*, *lilacina*, *digitata*, and *macrophylla*, make a magnific appearance whilst they are in bloom.

One of the most appropriate plans of cultivating these plants, however, b one rarely practised, is to turn them into the border of a conservatory, amongs rough peat and loam, where they will be encouraged to make fresh grow rapidly. Then insert beside each a stout post or pole, eight or ten feet high, a conduct the shoots round it until they reach the top, when they may be allow to hang down, and interwreath one with another. In this way they will so form a graceful pillar of shoots, two or three feet in diameter, and complet concealing the pole from the base to the summit. Nothing can be more elega and the amazing profusion of blossoms in spring and summer render such pla more than ordinarily attractive. They will require to be cut back in autumn, order that they may send out a fresh supply of vigorous flowering shoots; a throughout the summer months they will occasionally need a little trimming w the knife, to keep them from spreading too far, or becoming untidy. Some examples of this kind may be seen at the garden of the Horticultural Soci Chiswick, in the large conservatory.

All who are in the habit of visiting the great metropolitan exhibitions m have been struck with the magnificence of the noble specimens of *Clerodendr squamatum*, and two or three other species equally gorgeous. Before offering remarks on the plans of culture resorted to for their production, we must pre that there is perhaps as much due to assiduous superintendence and unti exertions as to any peculiarity of system. It is true, that in the rearing of s of these plants, all the aids have been employed that can be supplied by w constructed houses, great extent of accommodation, and improved modes of heat ventilating, &c.; but it is enough, at the same time, to know that many scar inferior specimens have been grown by cultivators, who have had numerous disheartening difficulties to contend with: in fact, nothing short of an enthusi love of flowers could have set these at defiance. Necessity is truly styled

rent of invention: the want of convenience to pursue the beaten track often
ds to the discovery of superior ways of culture. But let us not be misconstrued :
would not depreciate the advantages which may be commanded by well-
anged apparatus and ample conveniences, nor undervalue a special order of
nagement for different plants; nevertheless, with all these, cultivation is still a
re experiment without indefatigable attention, and some ingenuity.

Many people are deterred from growing the Clerodendrums through the
mmon belief that they will only succeed in a stove. Fine plants, however, may
had with nothing but a greenhouse and a common pit or frame. Undoubtedly
ey may be grown larger, and are more easily preserved through the winter in a
ve; but, in small places, dwarf specimens, with a good cluster of blossoms, are
ually more desirable than large ones.

As they are plants which send out their flowers from the top of the current
ason's shoots, it is essential to the production of fine trusses to give every encou-
gement to the perfect development of stem and leaves early in spring. With
s view, the wood of the previous season should be cut away to within two or
ree buds of the base; this will induce the eyes left to push with greater vigour.
ey may be left dry for a week or two after pruning; they are then to be
nted in smaller-sized pots, and set in a pit or frame heated either with fer-
nting materials, or by a tank, observing to have the pots plunged nearly to the
n. Here they may remain until the flowers are formed, shifting them into
ger pots as soon as they get to grow rapidly.

A strong fibrous loam, in a rough state, kept open by adding a portion of leaf-
uld, constitutes an appropriate soil. Well-rotted cow-dung may be added, if
ge specimens are desired; but the exuberance of the plant will be more under
ntrol if, in lieu of it, liquid manure be applied frequently after the plant has
gun to grow freely. Where a large quantity of rotten dung is incorporated
th the soil, and the roots have once penetrated it, should it stimulate to
cessive vigour, there is no means of avoiding it without repotting the plant.
owth might be checked by placing in a lower temperature, or in a drier atmo-
here; but it is more than probable that the one would induce a sickly aspect,
d the other would be likely to encourage insects, especially as the plants are at
times very liable to their attacks. Liquid manure admits of being applied or
thheld at pleasure, as the exigencies of the plants suggest. Besides, smaller
ts will suffice; because the same bulk of loam, fed from time to time with liquid
nure, will afford as much nutriment, or nearly so, as if the dung itself were
orporated with it. Soil that contains much dung is, moreover, sooner
hausted; and by the time the plants are in bloom, it will be so far spent as to
scarcely able to maintain the leaves in a healthy deep green colour. It must
remembered, however, that the liquid should be clear, such as usually drains to
tank of a farm-yard, and not the thick muddy substance obtained by mixing
ng and water together, and stirring up, as many do, before it is used.

When the flowers appear, (which will be about the middle of June, or a lit later,) the plants may be removed to a greenhouse ; observing to place them wh they will not be exposed to strong draughts of air, until they are a little inured their situation. With ordinary care, they will continue to flower for the m t part of the season. When large specimens, that have been flowering for so time, begin to suffer from the want of fresh soil, instead of shifting them to a m roomy pot, it is better to pare off some of the top soil, drench the roots well w manure-water, and afterwards dress the surface over with a strong fresh earth. f practicable, they should be placed for a week or ten days after this in a closer a l more humid atmosphere ; if not, they must be well syringed, and shaded fr the sun.

The very large plants of the London gardens are mostly either kept c- stantly in the stove, or removed there from the pits at the time of floweri . Through this means, they will sometimes disclose enormous heads of blossom, t the colour is inferior to that of the same kind in a cooler atmosphere ; and e petiole of the leaf is often elongated, so as to detract from their beauty.

Old plants which have been excited into growth, as we have described, m e magnificent objects planted out in a conservatory border, where they are t too much shaded by other things. If these are kept dry through the winter, t y will mostly survive ; but it is advisable always to keep a stock in pots on a y airy shelf. All the plants should be partially headed over in autumn, when t y have ceased to bloom.

In conclusion, we would suggest to those interested in raising hybrid variet s, to endeavour to combine the sweetness of *C. fragrans* with the rich scarlet hu f other species. Perhaps the climbing *C. splendens* would be most suitable for e attempt, as it would be likely to secure a smaller foliage, as well as a ric r colour.

ON GRAFTING LESCHENAULTIAS.

Amongst the dwarfer class of greenhouse plants, we shall hardly find a m re engaging bush than the slender twiggy *Leschenaultia formosa*. As far as reg ds density and abundant flowering, there is little left to wish for in its cultivati ; but in general, the plants scarcely acquire a proportionate height. A short t e ago, we saw some specimens produced by Mr. Duncan, gardener to — Malc n, Esq., at Lamb Abbey Park, Kent, in which the objection was comple ly obviated.

The manner in which this was effected, was by working it upon the l ge variety of *L. biloba*. Free-growing plants, divided near the base into three or ur strong shoots, were selected, and headed over at the height fixed upon. A eft was then made in each in the way usually called crown-grafting, into which he on—a healthy shoot, several inches long—was inserted, and bound up in the ual manner. As soon as the operation was performed, the plants were placed in :lose heat in a propagating pit, and shaded for a few weeks. By this means, a rfect amalgamation was effected, every scion having succeeded.

Another plant was inarched in the ordinary way, at different heights, and has en equally successful. The only other difference in treatment was, that, instead being removed to a close pit, it was suffered to remain in the greenhouse. rafting, however, produces the neatest plants; and it would no doubt be fully as ectual by some of the less objectionable modes of procedure, such as whip or ldle grafting.

From the appearance of the specimens at the time of our visit, we should be clined to attribute an extra degree of luxuriance to this plan; and there is little ubt, from the more vigorous character both of the stem and roots of the stock, at good-sized plants will be more speedily formed than when upon its own roots; d there seems but slight fear of their durableness.

Every one acquainted with the *L. formosa*, under circumstances favourable to growth, is cognisant of the tendency of its branches to droop over the edges of e pot. Hence, when the scions inserted at heights varying from a foot to ghteen inches, have reached something of a dense character, besides the upward rection of some of the shoots, the undermost ones will be forced into a pendent sition, and eventually almost conceal the stem of the stock.

Besides, by placing scions of the *L. biloba nana* on the inferior branches, and lowing the shoots from them to mix with those of *L. formosa*, we might have e curious blending of blue and crimson flowers on the same plant. This kind is arer the same rate of strength as *L. formosa* than the large variety, and would less likely to overpower it. Should any of the shoots of the blue one overtop e other, they might either be shortened back, or bent downwards.

The beauty of these plants depends largely on the compactness of the top; nce it becomes needful to seek to produce and preserve this in every stage of the ant's growth, but especially whilst it is in a young state. It is sometimes fficult to recover a once-neglected specimen to a passable appearance. Young ants are always best grown in pits or frames.

FLORICULTURAL NOTICES.

NEW OR BEAUTIFUL PLANTS FIGURED IN THE LEADING BOTANICAL PERIODICALS FOR MAY.

Angræ'cum apicula'tum. A small species of Orchidaceæ, with a stem from three to five :hes long, throwing out roots, and clothed with spreading distichous leaves of an obovate lance-ıte form. The racemes spring from the side of the foot of the leaves, are nearly a foot long, and ng down. The flowers are nearly all white, the points only being tipped with purple. It was scovered in Sierra Leone, and introduced by Mr. Whitfield, in 1844. Sir William Hooker says, he "was at first disposed to consider it the same with *A. bilobum*, Lindl., Bot. Reg., 1844, t. 3 but that has semi-pellucid, reticulated leaves, distinctly and deeply two-lobed at the extremit (whence the specific name,) the rachis of the raceme and peduncle are warty, and the spur dilated and emarginate at the apex. In other respects the two plants seem almost entirely agree."—*Bot. Mag.*, 4159.

Calceola'ria a'lba. This is a suffruticose plant, of erect growth, with narrow serrat leaves much like those of *C. thyrsiflora*. It flowers in long terminal leafy panicles, each pedunc of which bears a corymb of white flowers. The corolla consists of two very unequal lips; t upper one very minute, the lower one much larger, both are compressed, and meet together, that the throat is quite closed. It is "a native of Chili; but probably of rare occurrence, least, it has not, till now, been introduced to our gardens. Mr. Veitch received seeds from l collector, Mr. William Lobb, and plants raised from them flowered in his nursery in Septemb 1844. It is singular in the very pale, nearly white, colour of the flowers. The foliage, thou narrow, is copious, and the plant has an erect and graceful mode of growth. Ruiz and Pavo figure represents the corolla with the lips spreading; but this is probably owing to its being tak from a dried specimen. The species will perhaps bear our mild winters."—*Bot. Mag.*, 4157.

Dendro'bium fimbria'tum, *var.* ocula'tum. The species is "a native of Nepal, wher plants have from time to time been sent to our stoves by Dr. Wallich [see vol. II., p. 172]. first blossomed in the Liverpool Botanic Garden, as stated in the 'Exotic Flora,' and the flow were of a uniform golden yellow. Our present plant, in the Royal Botanic Gardens of Kew, l a dark blood-coloured eye-like spot in the centre of the labellum, which adds greatly to the bea of this otherwise charming plant. This state of it, Dr. Lindley considers that of the nat specimens. It flowered with us in September, 1843." [Those who wish to know what may done with orchidaceous plants, should see the enormous specimen of *D. fimbriatum* now flower at Messrs. Rollison's nursery, Tooting.]—*Bot. Mag.*, 4160.

Echeve'ria Sche'erii. "Although this is by no means so handsome a species as some those already published, it is far from being unworthy of cultivation. Its leaves are large glaucous, and its flowers, notwithstanding their dingy colour, are abundant, tolerably large, gracefully arranged:" the latter appear in nodding, racemose panicles at the end of the sho "For its introduction the public is indebted to Frederick Scheer, Esq., of Kew, a zeal collector of succulent plants, and whose name it will henceforward bear. It is a native Mexico, whence seeds were received by that gentleman, and presented to the Horticultu Society in September, 1842. It flowers in the winter. Like the rest of the genus it is a gre house plant, which should be potted in peat, loam, and silver sand, in equal proportions." Be of a succulent nature it requires but little water, especially in winter. "It is easily propaga either from seeds sown in the usual way, or from leaves laid on the surface of the soil."—*Bot. Reg.*, 27.

Goode'nia grandiflo'ra. "This plant was raised in the garden of the Horticultural Soci from among a parcel of seeds presented by Mr. Bidwill, and the packet was labelled in t gentleman's hand-writing, 'New Zealand.' It is, however, beyond all doubt, the same as the Jackson plant, which was long since introduced to this country, but which seems to have b generally lost again. Are we then to conclude that *G. grandiflora* is common to both Holland and New Zealand? or are we to suspect some error in the ticketing? Be that a may, it is certain that we have recovered a very pretty greenhouse perennial (not annual biennial) well worth cultivating for the sake both of the gay appearance of the flowers an their fragrance, which is that of orange bloom, only much less powerful." It is a plant of r growth and easy cultivation, readily increased from cuttings, which, if struck early in autu will make fine specimens for the greenhouse the following summer, when the hard-wooded pl are set out of doors.—*Bot. Reg.*, 29.

Jasmi'num affi'ne. Dr. Lindley suspects this to be the wild officinal Jasmine (*J. officin*). "It differs in very little, and would under ordinary circumstances be looked on as a mere var with pink-tubed flowers, somewhat larger than usual. But it is a wild plant, having been ra in the garden of the Horticultural Society from seeds sent from the north of India by Dr. Ro under the name here adopted. This much is certain, that it is quite capable of braving climate of an English winter. The native country of the common Jasmine is said to be the

the Caucasus, whence it is supposed to have spread eastward ; but the latter point is conjec- al, unless this plant should establish its truth." The following is an extract from Dr. Royle's *ustrations of the Himalayahs*:—" *J. officinale* has become so naturalized in the gardens of igland, that we cannot believe it, as generally supposed to be, a native of India; as we know other instance where a shrub from the plains or southern parts of that country has become climated so far north ; but the common name of the Jasmine in the languages of Europe licates its origin from the Arabic name Yasmeen. *J. grandiflora* is the most nearly allied ecies, and this flourishes in the hottest parts of India. Dr. Wallich has, however, obtained ecimens from the mountains of Kemaon, which he has referred to this species, and which are ry similar to some I have gathered in such mountains as Dhunoultee, Suen, Acharanda, Kedar- inta, and Urrukta. These I have been in the habit of considering as *J. officinale*, as it is not ual to find the same shrub common in the plains and at 7000 and 8000 feet of elevation in 30° N. latitude." *Bot. Reg.*, 26.

Lupi'nus ramosi'ssimus. This name has been accorded by Mr. Bentham, in a yet unpublished inuscript of the *Plantæ Hartwegianæ*, to a species "raised in the garden of the Horticultural ciety, from seeds collected by Mr. Hartweg on Chimborazo, at an elevation of 13,000 feet ove the level of the sea. The flowers smell like those of the Sweet Pea." It "is a pretty half- rdy shrubby species, growing three or four feet high in any good garden soil, and well suited r cultivation in the open border, if treated as a summer annual. The seeds should be sown rly in February, and afterwards potted singly ; and when the danger of late spring frost is er, they should be planted out, where they will bloom freely from June to October." [Doubtless is species, as well as *L. arboreus* and *L. mutabilis*, would strike root from cuttings taken f in autumn, and make dwarf specimens to flower in the greenhouse till after Christmas.]— *ot. Reg.*, 25.

Periste'ria Humbo'ldti, *var.* fu'lva. This variety flowered in the collection of Mr. Barker, ear Birmingham, in June 1843. The colour is considerably different from that given by r. Lindley in the *Botanical Register*, on which account it is here indicated as a variety. s native country is Venezuela, where it was first detected by Humboldt ; for Dr. Lindley has early determined that the *Anguloa superba* of that author is in reality this plant, represented an imperfect state. It is one of the most striking among Orchidaceous plants, and few are ore worthy of cultivation. The true *Anguloa* of Ruiz and Pavon is ascertained by Dr. indley to be a very different genus. The present kind bears pendent racemes from eighteen iches to two feet long, numerously furnished with large fleshy flowers of a tawny yellow colour, ished almost all over with spots of purplish brown.—*Bot. Mag.*, 4156.

Polysta'chya bracteo'sa. Communicated from Sierra Leone by Mr. Whitfield. The seudo-bulbs are about an inch in diameter, almost orbicular, and singularly compressed ; from ieir summit arises a stout petiole, bearing a solitary oblong-obovate leaf. The peduncle issues om a cleft at the top of the petiole, and bears a large leafy bract at its origin, and several naller ones above it. The flowers are dull orange-yellow, and arranged in a many-flowered, rooping raceme. Dr. Lindley observes, "it is well distinguished by its downy flowers and taper- ig squarrose bracts, which extend down the peduncle, the lowermost one being very large and af-like."—*Bot. Mag.*, 4161.

Salpixa'ntha cocci'nea. "This curious plant, which has at first sight, indeed, little apparent ffinity with the Acanthaceæ (sect. Ruelliæ), was discovered by Mr. Purdie, botanical collector r the Royal Gardens, in the island of Jamaica, whence it was sent to the Royal Gardens. It lossomed freely in the stove during the autumn of the same year, and in the early winter of 844–5, and made a very pretty appearance with its gracefully pendent, scarlet blossoms, and s well-formed dark green foliage." It is a low, branching shrub, perfectly smooth all over, with pposite, ovate, somewhat waved, dark green leaves. It bears its blossoms decussately arranged a spike on the upper part of a peduncle, either terminal or proceeding from the axil of the aves. The flowers have a tube about an inch long, and an almost equal, spreading, five-cleft mb.—*Bot. Mag.*, 4158.

Stanho'pea Buce'phalus. This species has received the names of *Epidendrum grandiflorum* nd *Anguloa grandiflora* in the works of Humboldt and Bonpland. It "is one of the rarest and nest of the Stanhopeas, in some measure resembling *S. oculata*, especially in the long, narrow hypochil. Its flowers are deliciously scented, and their bright golden colour produces a very ri effect. At first sight it might be taken for a mere variety of *S. oculata*, but Messrs. Loddig long since pointed out the shortness of its ovary as a decisive mark of distinction. The effect this shortness is to make the inflorescence of *S. Bucephalus* very narrow, while in *S. oculata* is broad and straggling. The species is a native of the woods of Paccha, a small village in t Andes, on the ascent from Guayaquil to Loxa, at an elevation of 6000 feet above the level of t sea, where it was found by Mr. Hartweg. It first flowered in the garden of the Horticultu Society in August, 1843. Its stem is spotted as well as its blossoms."—*Bot. Reg.*, 24.

Wa'rrea cya'nea. The genus *Warrea* was established by Dr. Lindley in 1843, upon t old *Maxillaria Warreana.* Since then, two new and quite distinct species (of which this is o have been added to it. "In the beginning of 1844 this beautiful species blossomed w Messrs. Loddiges, and a few months since another (*W. bidentata*) appeared in the collection Mr. Rucker. Both the latter are from the Spanish Main, and it is not improbable that oth may lurk in the unexamined forests of that vast region. *Warrea cyanea* is remarkable for t intense porcelain-blue colour of its lip, to which it is not easy to find a parallel in the order; pure blue is scarcely known among Orchids. The plant has quite the habit of *Warrea tricol* but is very much smaller in all its parts. Its most distinctive character is found in the form its lip, which has a distinct point, and five ribs, not three, near the base. Messrs. Loddi imported it from Colombia, and it is No. 860 of their last catalogue. Being a terrestrial specie requires treatment very similar to *Phaius maculatus*." [Not the least recommendat property of this plant is the long time during which it continues to send out successio racemes of flowers. We observed it flowering during the spring and summer months of 1844 Messrs. Rollisson's nursery, Tooting, under the name of *Warrea cœrulea.*]—*Bot. Reg.*, 28.

NEW OR INTERESTING PLANTS RECENTLY FLOWERED IN THE PRINCIPAL METROPOLITA NURSERIES AND GARDENS.

Ble'tia catenula'ta.—This is the species upon which the genus *Bletia* was first establis by Ruiz and Pavon, although it has only very lately appeared in this country, and is, we belie at the present time only in the hands of Messrs. Veitch and Sons, of the Mount Radford Nurs Exeter, who introduced it through their collector, Mr. William Lobb. It was discovered by t successful collector, occupying dry sandy situations upon the hills near Muna, in Peru. specimen has recently flowered, and was exhibited at the rooms of the Horticultural Society Regent Street, in the beginning of the month. It is apparently similar in habit to the common *B. florida.* The flower-stem rises erectly nearly a foot and a half; the blossoms, wh are loosely arranged on the upper half, are large, and of a fine purple colour. Like the ot species, it will require to be grown in a pot.

Gesne'ra macula'ta. A very showy variety, growing about two feet high, and terminat in immense clusters of purple flowers, spotted with white at the throat, about the size and sh of those in *G. Cooperii.* It sprung from seed of *G. Douglasii,* fertilized with some of the sca flowering kinds from Brazil, and is now blooming in Messrs. Henderson's nursery, Pine-a Place.

Habrotha'mnus fascicula'tus. This plant has at length flowered in the Horticult Society's garden at Chiswick, and proves to be really a very fine thing. The tubular flowers of a very rich orange crimson, and appear in clusters at the top of the branches. The specin in question is little more than a yard high, and has been kept in a greenhouse. By some take, the *Céstrum ròseum*, a plant very much resembling it in habit and foliage, but inferio the flowers, has been sold rather extensively for it.

Odontoglo'ssum, new species. Two new species have flowered lately in Messrs. Loddi extensive collection. One is almost white, and the other has a delicate pinkish purple tint: have a circular collection of irregularly-shaped long dark spots in the centre portion of flower. That with the paler ground colour is the larger flower, and has more distinct, a greater number of the transverse streaks in the middle. They are allied to *O. Rossii,* but blossoms are considerably larger.

OPERATIONS FOR JUNE.

By this time the most important part of planting in the flower-garden ought to be completed. here from any cause this work has been postponed till the present month—a position that is ly justifiable when owing to the protracted recurrence of night-frosts, extreme aridity in the l and atmosphere, or when a blaze of flower in Autumn is preferred to an earlier display—it ould now receive the chief attention until it is fully accomplished. Of course, in those places iere flowers are not to be dispensed with throughout the whole season, it will be necessary to move many of the annuals, bulbs, and other things that have spent their beauty, and to fill up eir places from time to time with a fresh stock, ready to expand blossoms almost as soon as ey are planted.

It sometimes occurs, as in last Summer, that the progress of these plants is marred for a nsiderable period, by the incidence of prolonged drought. Should this state of weather exist iring the present month, or any time before the plants have entirely spread a carpet of leaves d stems over the beds, it will be preferable to use some means of checking evaporation, than to ve recourse to repeated waterings. With a dry air and a scorching sun, waterings, however undant, can do little good ; and they act banefully, by diminishing the temperature of the soil. is a far wiser plan to retain moisture about the plants by the application of some covering ; and r this purpose, where it can be procured easily, there is nothing more effectual, or that looks ater than moss, stripped from the rocks in large flakes, so that the winds may not scatter it out. It is infinitely more eligible than short grass, or any of the mulchings more generally sorted to, on account of the more untidy appearance of the latter. A lot of oyster-shells placed und the plants is also a convenient and useful means of keeping the soil moist.

But, although the continuance of a daily system of watering out-door plants in dry weather is least useless, it is nevertheless essential to apply a copious watering immediately after planting, cept during a showery time, in order that the earth may be well settled about their roots, so as enable them to extend further with facility. And before laying on anything to intercept aporation, the whole border should be rendered moist. This is the more necessary when the ants are transplanted from a bed, or have not been kept in separate pots. The more tender nds of plants which have been treated thus, will require to be shaded, if bright weather succeed efore they have got good root-hold of the soil.

We would recommend those who have convenience for experiment to look over their collections greenhouse and stove plants now ; and from those which can be spared, select what are likely prove useful, to test their ability to endure and contribute ornament in the open air during mmer. It may also be advisable to plant others under the protection of a south wall, in a order prepared for the purpose ; climbers may be trained against the wall ; and with the shelter affords, many tender things thrive more prosperously than they do in the house. *Manettia, chimenes, Tropæolum tricolorum*, and similar species, *Thunbergia*, various sorts of Cacti, and her things of like nature, will probably succeed in most localities that are in any way favourable.

Among the many provisions now making for future show, the stock of Chrysanthemums must ot be lost sight of. They are very frequently much neglected at this season, through the more ressing nature of the schemes in hand in the pleasure-ground, for a more immediate decoration. articular attention should be exercised in stopping them as they advance in growth, to obtain ushy specimens, at the same time fostering a vigorous increase by giving them room ; and a rong rough loam, with a trifling quantity of leaf-mould mixed amongst it. Instead of incorporating uch dung with the soil used in potting, it is far better to depend on the application of a clear quid manure : by this means you will have more command over the development of the plant, rough supplying a greater or smaller quantity, accordingly as it may be judged desirable. In oosing a station for them, many people select a spot beside a wall : this is not judicious, as it akes them grow one-sided. Let them be sheltered, but with a free and nearly equal accession f light on all sides. To gain a quantity of dwarf specimens for smaller pots, any old stools yet nseparated may be planted in a border of the reserve garden, so that the stems may hereafter be yered into pots. All these plants under pot-culture require very copious watering ; and it is highly beneficial to have a framework of laths over them, upon which a mat can be thrown sunny weather.

Many greenhouse plants, and we may say especially Indian Azaleas, are managed better this time in pits and frames,—at least those that have finished flowering. They make bett growth, and also show the propriety of the treatment in the beautiful deep green which the leav attain. The same may be said of several soft-wooded stove-plants, only they need to be k freely ventilated.

Conservatories and greenhouses will require a greater admission of external air now, or t plants will be drawn out too much. The practice of shutting them up entirely whilst the s shines upon them, is decidedly bad. A little air may now be left on all night safely. W regard to the humidity of the atmosphere, it should be constantly maintained, by throwing wa on the paths and shelves two or three times daily, and by syringing towards the evening of eve clear day. Water the borders inside the houses copiously, whenever they require it; when th are only scantily supplied, it does not sink deep enough to be serviceable to the principal ro of the plants. Shade is quite essential at this season to prevent the tender young plants fr being scorched.

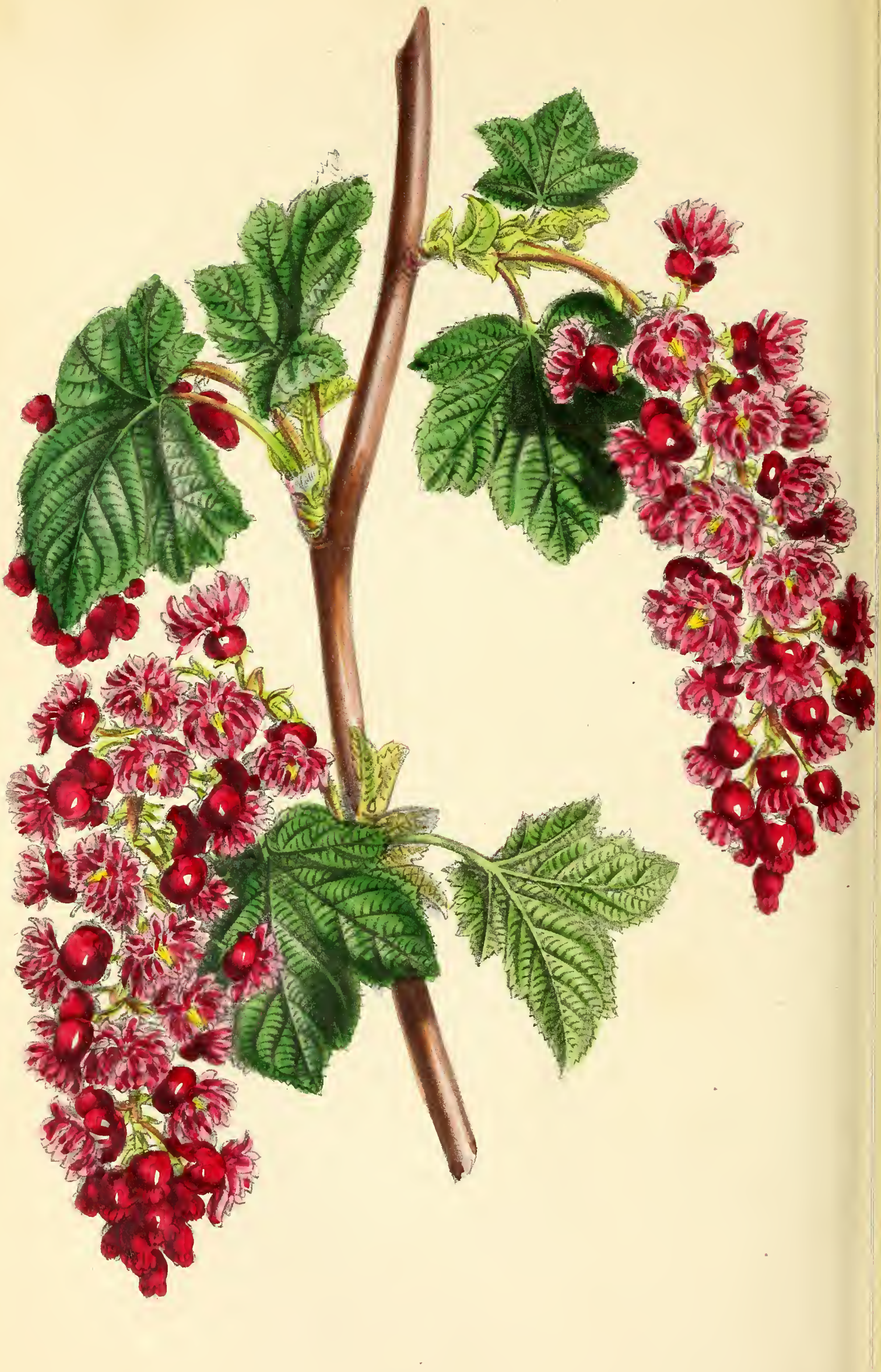
During this and the three succeeding months, the cooler houses may be made the receptac for a large number of orchidaceous plants in flower. Most of the showy Dendrobiums, Max larias, and Oncidiums, will be benefited by it: some of them acquire a deeper tint in th flowers, and all last for a longer period. It must be remembered, however, that strict care mu be taken in syringing the house that no water falls upon their flowers, otherwise their beauty defaced directly; neither can they bear to be watered at the root with the liberality th demand in a higher temperature.

In the stove and general orchidaceous house, most of the plants will be forming their fre growths rapidly; but as these will be in various stages of development, they must not all treated exactly alike, or indiscriminately. One end of most houses is a little warmer than t other; and it is easy, by adjusting the shades, to admit more light where it is wanted. Her by repeatedly examining the specimens, and removing those furthest advanced to a place whe they may enjoy more light and a cooler atmosphere, the additional formations will be better a more gradually matured. Besides this, some species naturally require more heat, and some be more light than others. Plants on blocks require water oftener than those in pots and baske They may be syringed twice a day when there is a drying external air.

The operations of potting and re-potting will be continually becoming necessary amongst large collection of plants; but with a great number of those that are excessively disposed luxuriance, and ought to bloom in the after-part of summer, it will scarcely be prudent to sh after the present month: at the same time, the culturist who does not desire bloom till t autumn, may delay its development by giving more pot-room to promote growth.

Now, is a good time to propagate many kinds of greenhouse and stove plants, in order procure tolerable-sized plants before winter. Cuttings of the common kinds of Pansies may put in towards the end of the month to provide plants for the flower-beds next spring. The as well as several greenhouse plants, merely require to be planted in a fine sandy peat-soil, a covered with hand-glasses, observing to obtain a site behind a north wall, or otherwise protec from the sun. Anemones and other tubers, and bulbs that have done flowering, should removed from the flower-garden; and if not sufficiently ripened, they ought to be carefully tak up with all the earth that will adhere to their fibres, and transplanted to a shady spot in reserve-ground, or kitchen-garden; by this means they will be little injured, and the beds may refilled with other plants.

Too much attention cannot be devoted to all those little things upon the observance of wh so much of the success and good keeping of the whole depends. Under this head we incl weeding, hoeing, raking, sweeping walks, clipping grass-edgings, staking and training all ki of plants that need support, spreading the new shoots of plants equally over the flower-beds a pegging them down, removing dead leaves and decayed flower-stalks and petals, destroy insects, keeping the exterior surface of pots clean, and the top of the soil clear of moss and d together with many other minor jobs essential to neatness.



Holden del & Lith

Ribes sanguinea flore-pleno.

RÌBES SANGUÍNEUM FLÒRE PLÈNO.

(Double Bloody-flowered Currant.)

Class.
PENTANDRIA.

Order.
MONOGYNIA.

Natural Order.
GROSSULĀCEÆ.

ENERIC CHARACTER.—*Calyx* superior; limb four or -parted, regular, coloured. *Petals* five, inserted in throat of the calyx, and alternating with its seg-nts, equal. *Stamens* four or five, very rarely six, y short, alternating with the petals, equal; *ments* conical or cylindrical, distinct; *anthers* two-led, opening lengthwise. *Ovarium* one-celled, with opposite parietal placentas; *ovula* numerous. *le* one, three or four cleft. *Fruit* succulent, nearly bose, umbilicate at the apex from the permanent yx, one-celled, many-seeded. *Seeds* arillate, sus-ded by a long filiform podosperm; outer integu-nt gelatinous or juicy, and membranous; under a very thin membrane, adhering closely to the umen; bluntish at the extremity opposite the *hilum*. *Albumen* horny, conforming to the seed, white. *Embryo* minute, at the sharpest end of the seed, excentral, with a blunt *radicle*, which is placed next the *hilum*.

SPECIFIC CHARACTER.—*Plant* a bushy shrub. *Leaves* cordate, somewhat five-lobed, serrated, veiny, smoothish above, but clothed with villous tomentum beneath. *Racemes* drooping, pubescent, twice the length of the leaves. *Calyx* tubulary, campanulate, with oblong obtuse spreading segments, exceeding the *petals*, which are red, and quite entire. *Bracteas* obovate-spatulate. *Berries* turbinate, hairy, brownish-black and bitter, destitute of pulp.

VARIETY.—A seedling with *double flowers*.

FOR specimens of this interesting variety of a popular shrub we are indebted the kind attention of Mr. James M'Nab, curator of the Caledonian Horticul-ral Society; and we extract the following account from the statement which companied them:—

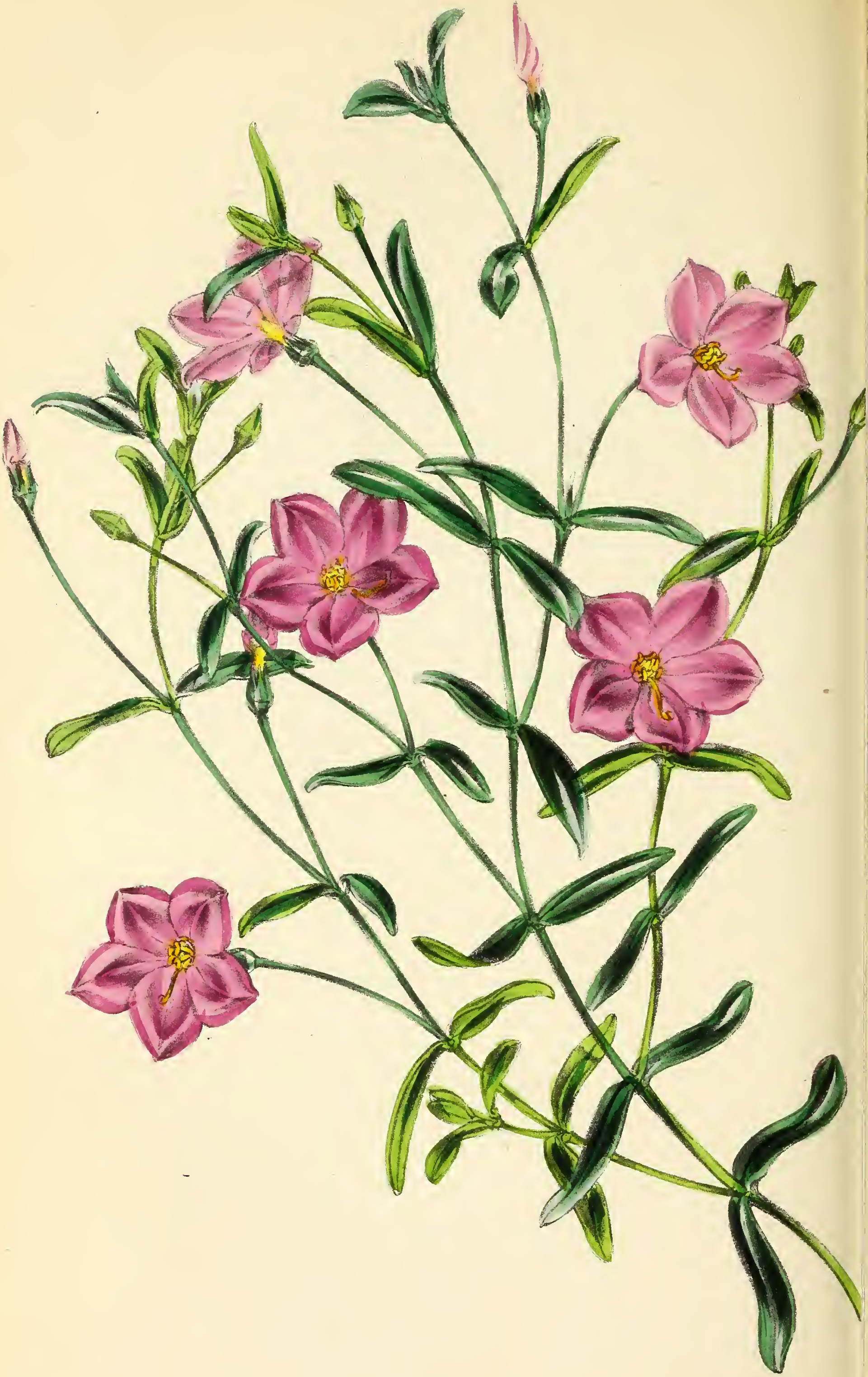
"It has flowered for the second season in the garden of the Caledonian orticultural Society, both as a standard and on a wall. Last year the plants ere comparatively weak, and it was not until this spring that it fairly proved elf. It is considerably later in blooming than the ordinary varieties of the arlet flowering currant, the standard variety being in bud when the single riety was passing out of flower; and on the wall the double variety is in per-ction when the others similarly placed are long gone by. Its racemes vary from ree to six inches in length; and possess sufficient strength to support its com-ratively heavier flowers, and cause them to stand clear of the foliage. It also mains much longer in a state of perfection than any of the single varieties. hen forced, it assumes a still more monstrous form, the flowers resembling the en and Chicken Daisy * (*Bellis perennis prolifera*). Its growth is every bit as e, and it flowers just as profusely as the ordinary single variety, and, like it, is sily propagated by cuttings and layers, and requires the same treatment."

* We received specimens of it in this state, which perfectly corroborate the description.

It appears that the merit of putting cultivators in possession of this valuab addition to our hardy spring-flowering shrubs is due to Mr. David Dick, garden to the Right Honourable the Earl of Selkirk, at St. Mary's Isle, Kircudbrig who discovered it in a collection of seedlings raised in the Isle Garden. Mr. M'N has favoured us with the annexed remarks on its origin, taken from a lett addressed to him by Mr. Dick, last April :—

“ The seed I have no doubt was ripened in the Isle Garden, where they fru abundantly, and was sown by some one of my predecessors. When I came he I found about one hundred seedling plants standing close together, none appeari to have flowered. During 1839 I had them planted out, and, on their flowerin the double variety was detected. I did not observe any approach to a doub flower on any other individual of that stock ; nor even the least tendency to multiplication of parts on any of the numerous seedlings since raised. Among those obtained at the same time with the double one, several distinct shad occur ; many have also a tendency to produce larger racemes than the origi species. I have generally found the double variety three weeks later in floweri than the common varieties cultivated here.”

Blooming as it does at the very time when flowers are so much want especially in metropolitan gardens, and the parent species being so well known, needs no eulogium of ours to gain it a favourable reception : every one can imag how much more showy the double flower must be than the single. To the list forcing flowers, it will also be an addition of some importance.



Holden, del & Lith.

Chironia floribunda

CHIRÒNIA FLORIBÚNDA.

(Abundant-flowering Chiron.)

Class.
PENTANDRIA.

Order.
MONOGYNIA.

Natural Order.
GENTIANÃCEÆ.

eneric Character.—*Calyx* five-parted. *Corolla* er-shaped, with a narrow tube, and a spreading , which is longer than the tube. *Stamens* five; *nents* broad, short, rising from the top of the tube; *hers* oblong, erect, connivent, at length spirally sted. *Style* declinate, a little longer than the nens. *Stigma* capitate, assurgent. *Pericarp* one-ed, two valved *Seeds* numerous.—*Don's Gardening Botany.*

Specific Character.—*Plant* an evergreen sub-shrub. *Stem* smooth, much branched: branches somewhat succulent. *Leaves* linear, or oblong-ovate, smooth, shining, acute, thick, spreading, sessile. *Peduncles* solitary, above an inch long. *Calyx* segments elliptic-oblong, acute, one-nerved. *Corolla* red, lucid; segments obovate, obtuse, twice the length of the tube.

Synonyme.—*C. Fischeri.*

Respecting the native country of the pretty bright-flowering little plant before we have no direct evidence; but, like the rest of the family, it has doubtless n obtained from the Cape of Good Hope. It was introduced to this country m the continent last year by Messrs. Jackson, of the Kingston Nursery; and identical with the *C. Fischeri* of Messrs. Rollisson's establishment, obtained out the same time from a similar source.

In character it is a low-growing plant, dividing into numerous branches, ich spread out in a lateral direction, and speedily form a neat compact specimen. the shoots are not produced thickly enough to preserve the density of the bush, ir numbers may be readily increased by occasionally pinching out the point of strongest. It is important to keep the plant well filled with side growths, as beauty and abundant flowering depends largely upon it. Each shoot produces wers near its extremity, and, if encouraged to grow, will be putting forth fresh ssoms as the shoots lengthen throughout the summer. Being thus studded r the entire surface with flowers, which possess a lovely glittering colour, and elevated on peduncles so as to appear more prominently, it constitutes a most ly object, well worthy of the culturist's attention.

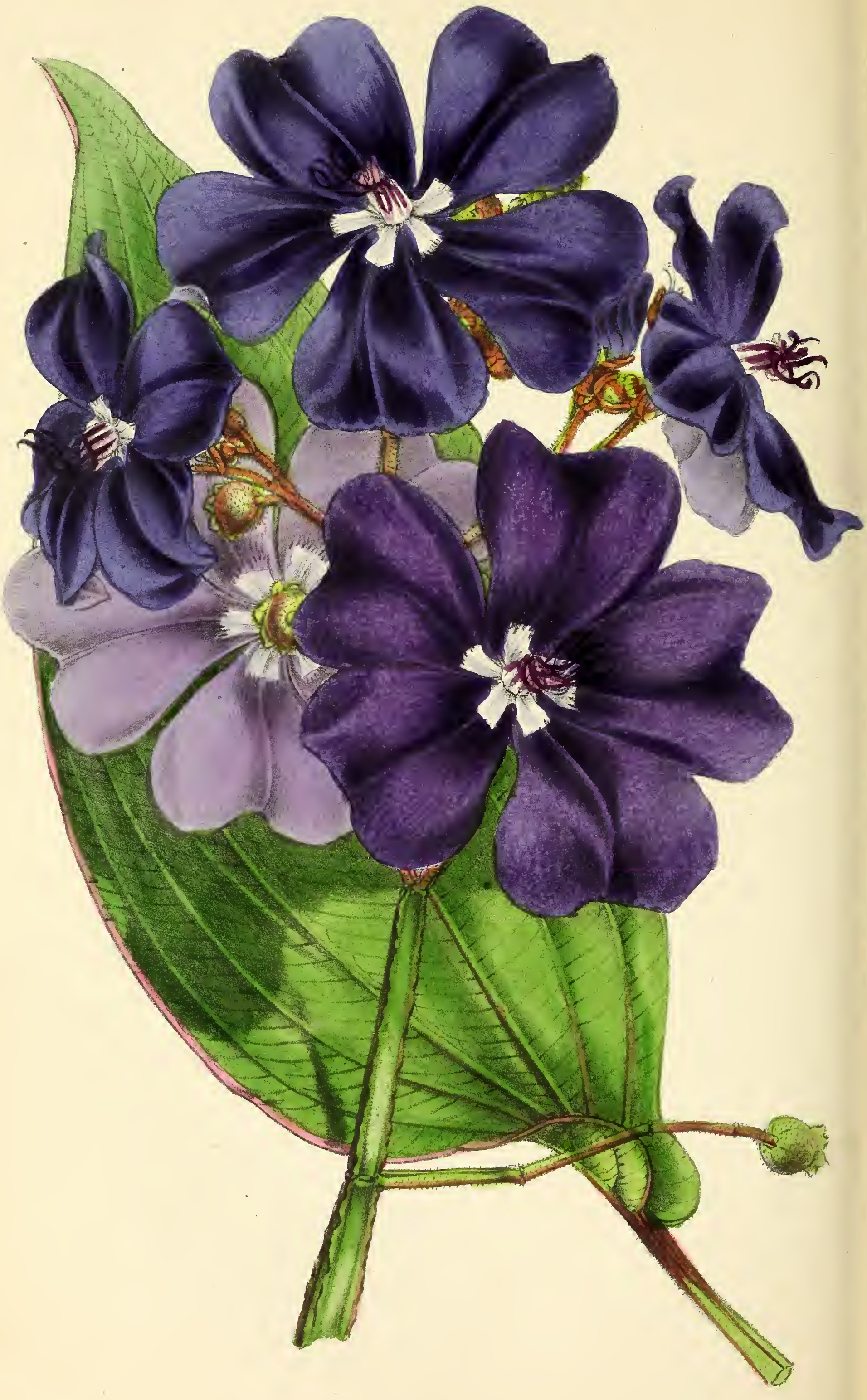
The main things essential to maintain the species in good health and rapid wth, are allowing the roots sufficient room to extend, and preserving a regular, t not over-abundant quantity of humidity in the soil and atmosphere. It kes numerous roots, and thrives well in a sandy soil, containing a considerable portion of peat-earth. It is necessary to observe at the time of potting to pla above an average quantity of finely broken crocks or pieces of charcoal in t bottom of the pot, covering them with moss or other substance to prevent the s from washing down amongst them.

An airy place in the greenhouse should be selected, where it may enjoy strong light. If kept in a frame, it will be advisable to stand the pot on a sh or stage : in winter it will require very little water.

Probably it may be found sufficiently hardy to stand the flower-garden summer, if any pains are taken to provide it with a properly prepared stati such as a warm border in front of a greenhouse, or in a well-drained shelte nook amongst rocks and stones.

Cuttings afford the readiest means of propagation. These strike easily wit gentle bottom-heat, if planted in sand, and protected by a bell-glass. They v require to be kept close, and shaded for some time after they are potted off. I also increased by seeds.

The specific name is accorded in reference to the extreme prodigality blossom.



S. Holden, del & Lith.

Pleroma Kunthiana.

PLERÒMA KUNTHIÀNUM.

(M. Kunth's Pleroma.)

Class.
DECANDRIA.

Order.
MONOGYNIA.

Natural Order.
MELASTOMĀCEÆ.

GENERIC CHARACTER.—*Calyx* with an ovate tube ;
ıen young, involved in two deciduous bracts ; lobes
'e, deciduous. *Petals* obcordate. *Stamens* ten.
laments pilose or glabrous. *Anthers* elongated,
ched at the base. *Ovary* adhering to the calyx,
ex bristly. *Capsule* baccate, rather dry, five-celled.
eds cochleate.

SPECIFIC CHARACTER.—*Plant* an evergreen shrub.
'anches tetragonal, and are, as well as the petioles,
)thed with adpressed hairs. *Leaves* petiolate, oblong, acute, five-nerved, quite entire, scabrous above from little bristles, but white from adpressed silky hairs beneath. *Pedicels* hispid, axillary, one-flowered, and terminal. *Tube* of *calyx* campanulate, beset with stiff bristles, but with the *lobes* deciduous. *Petals* very blunt. *Filaments* and *style* hispid. *Ovarium* bristly at the apex, rather longer than the tube of the calyx. *Bracteas* large, deciduous,

SYNONYMES.—*Pleroma Benthamianum ; Lasiandra Kunthiana.*

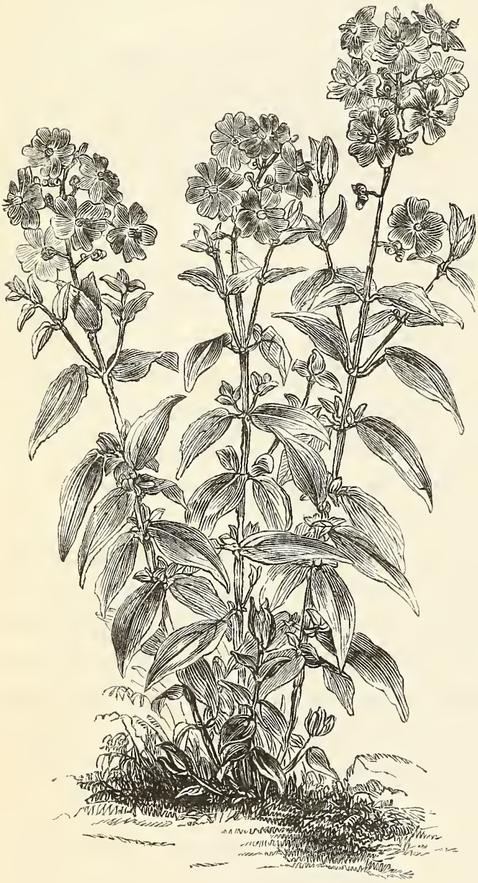
LIKE the *P. petiolatum*, figured at the close of last year's volume, this magni-
cent plant belongs to the sub-genus *Lasiandra*, having hairy genitals, and a dry
ıpsular fruit; whilst the true Pleromas have a berry-like fruit, and the genitals
erfectly smooth. We find it has been enumerated and described by De Candolle
L. Kunthiana ; and more recently, accompanied by a figure, in the "Botanical
[agazine," as *P. Benthamianum.* The latter specific name was applied to it by
[r. Gardner ; but the present having the claim of priority, we have accordingly
lopted it.

It is a Brazilian production, for the possession of which cultivators are
ıdebted to the exertions of Mr. Gardner. It was discovered by that gentleman
ı situations partaking of a boggy character on the Organ Mountains, at an alti-
ıde of more than 3000 feet above the level of the ocean, and by him transferred
the Botanic Gardens at Glasgow, where it first produced flowers in the latter
art of 1842. Our illustration was taken in the garden of R. G. Loraine, Esq., at
Vallington Lodge, where a vigorous specimen flowered in one of the stoves in
'ctober, 1844.

With the rest of the genus, it is a shrubby plant, having robust four-sided
ranches, bearing ample foliage of a neat outline, remarkable for its velvety
ftness, and the beautiful arrangement and prominency of the veins on the under
ırface. The flowers are disposed in large thyrsoid panicles at the top of the
ıoots, and possess a richness of tint unequalled by those of any of its congeners.

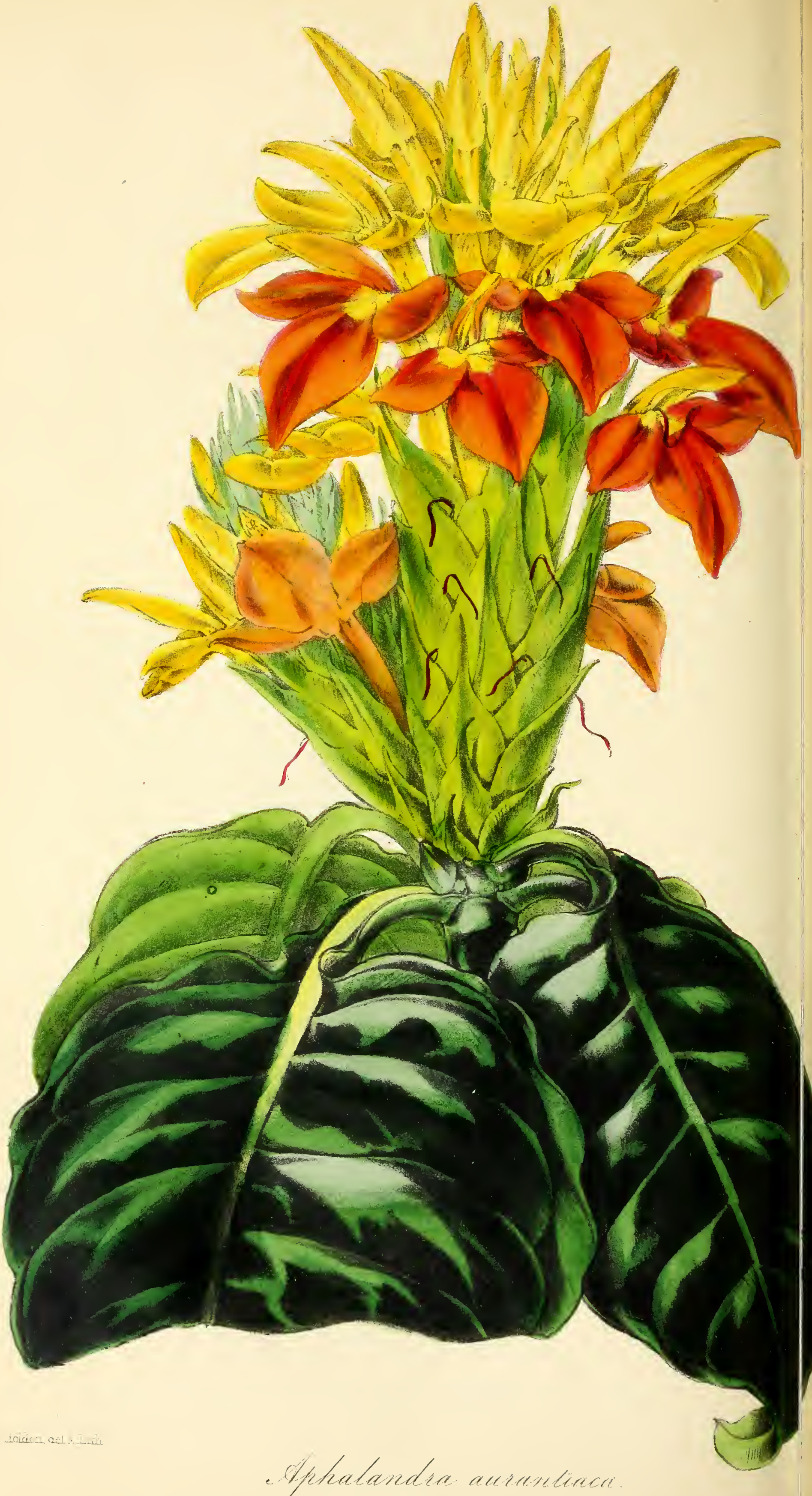
The petals are of good texture, and fit very compactly together, which, wit their large size, and the white speck at the base of each, enable them to for a blossom of a very superior order.

The species has been represented as one of tardy growth. This, however, i by no means the truth, under proper management; for with genial culture, i grows vigorously and flowers freely. Several cultivators, nevertheless, have faile to obtain blossoms even from strong healthy specimens,—a disappointment whic seems to be owing chiefly to the neglect of encouragement to grow early in th season, and of proper steps to mature the wood in autumn. This opinion receive strength from the facts, that the flowers are only produced at the extreme point o the summer's shoots, and that th latter will grow as much as fou or five feet before they bloom.



This rapidity of growth point out the necessity of pruning ver closely after flowering, in order t preserve the lower part of th plant clothed with foliage, an also with a view to obtain a equally stout growth in the succeeding season. Very fine bushe may thus be produced in a fe years; but it is not requisite t have old specimens to obtai flowers. Mr. Loraine's plan was reared from a cutting th previous autumn, and headed dow to three or four eyes in the spring A similar specimen was flowere about the same time by Mr Moor, gardener to R. Handbury Esq., of Stamford-hill.

The specific name was given i compliment to M. Kunth, the celebrated Prussian botanist, and coadjutor of Humboldt and Bonplan in the publication of the plants discovered by those distinguished travellers durin their well-known journey through Tropical America.



Holden del & lith

Aphalandra aurantiaca.

APHELÁNDRA AURANTIÀCA.

(Orange-scarlet Aphelandra.)

DIDYNAMIA.

Order.
ANGIOSPERMIA.

Natural Order.
ACANTHĂCEÆ.

ENERIC CHARACTER.—*Calyx* five-parted, unequal.
olla hypogynous, ringent; upper lip somewhat
hed, bidentate; lower-lip three-cleft, the lateral
ments many times smaller. *Stamens* four, inserted
the tube of the corolla, included, didynamous.
thers one-celled, awnless. *Ovary* two-celled; cells
h containing two ovules. *Style* simple. *Stigma*
-cleft. *Capsule* nearly terete, two-celled, four-
ded, loculicido-two-valved. *Seeds* compressed, sub-
ded by hooks.

SPECIFIC CHARACTER.—*Plant* a dwarf evergreen shrub. *Leaves* oblong-acuminate, deflexed, glabrous, undulated at the base, decurrent on the short petiole. *Spike* simple, tetragonal. *Bracts* ovate, acuminated, serrated. *Flowers* orange-scarlet. *Corolla* segments ovate, very acute; lateral ones twice shorter than the intermediate one.

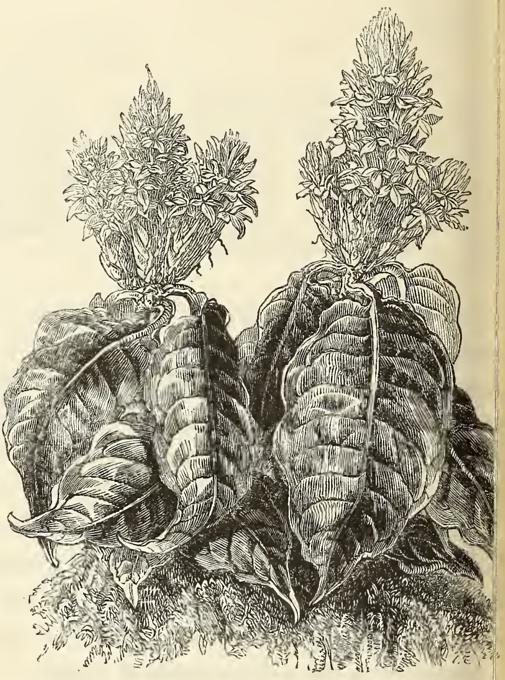
SYNONYME.—*Hemisandra aurantiaca.*

OUR stoves are largely indebted for their adornment during winter to the
autiful blossoms of the many superb species of Acanths, now so commonly dis-
buted. Among them, the old *A. cristata* has long been eminent for its noble
pearance, when well cultivated and in full flower; but notwithstanding its high
aracter, it is quite eclipsed by the transcendent beauty of its more recently
troduced congener.

Judging from the specimens we have seen in bloom, the *A. aurantiaca* would
pear to be a plant possessing a much dwarfer habit. None of these plants
ceeded a foot in height, and some scarcely reached six inches before the deve-
ment of flower-spikes. The stems were remarkably stout, each carrying on
e summit from one to three heads of blossom. It is possible, however, that this
y, in some measure, be the result of treatment; for we know that it is easy to
t flowers of *A. cristata* from specimens not much taller. When the flowers
st open, they are almost yellow; but they soon deepen to an intensely vivid
ange scarlet, far beyond the reach of artificial colouring. Besides this, they
ffer from those of *A. cristata* in the middle segment of the lower lip being flat,
orter, and broader; and the two side divisions much larger, in proportion to the
termediate one.

We learn, through a letter from M. de Jonghe, of Brussels, published in the
pril Number of the "Botanical Register," that this magnificent shrub was dis-
vered in Mexico by Messrs. Linden and Funcke, collectors for the Belgian
overnment; and the only living specimen transmitted, was presented to King

Leopold, and placed in the hothouse at the Royal Gardens of Lacken, ne Brussels. It flowered there, for the first time, in the month of July, 1843, a was exhibited at the floral exhibition of the Linnean Society of Brussels, when received the first prize as a remarkable novelty. Young plants having been giv in exchange to M. Jacob Makoy, it was transmitted by him to Mr. Low, Clapton, and other English nurserymen. It has flowered in the establishments Messrs. Henderson and Messrs. Rollisson; and we had the annexed colour delineation, and the woodcut, taken after a plant which flowered last December and January at Pineapple-place.



It has been described under the name of *Hemisandra aurantiaca*, by Professor Scheidweiler; and is known in some collections in this country by that title, with which it was first received.

The freedom with which such diminutive plants have produced blossoms, the time at which they appear, and their splendid character, augur well for the speedy popularity of the species; since these are qualifications of the first importance to those who can only cultivate a limited number.

It will doubtless require similar treatment to that bestowed on the otl species; namely, a moist stove heat, and copious supplies of water during summ; a loamy soil enriched with leaf-mould, or well rotted cow-dung, to which a port of peat and sand may be added; and the yearly reduction of the shoots to with two or three eyes of their origin.

It may be propagated by cuttings in the usual way; or by single ey, taken from the part of the branches cut away after the flowers are decayed.

Aphelandra is a compound from *Apheles*, simple, and *aner*, *andros*, a male; a is applied in allusion to the one-celled anther. The other name, *Hemisan* from *hemi*, half, *aner*, a male, appears to refer to the same peculiarity.

ROCKS AND ROCK-PLANTS.

In treating of this subject in a recent paper, we confined our observations ely to the advantages of rockwork in the culture of plants in the open air. As supplement to the remarks then offered, we now proceed to suggest the priety and utility of introducing a similar feature to the conservatory and ve.

We know the idea has been scouted by some of those who are wedded to the ff, formal, and monotonous arrangement of plants which prevailed some years , and still exists to a partial extent; urging as their plea, that the adoption of y such plan would be totally at variance with a formal building. From this w of the matter we entirely dissent; and, happily, the *principle* upon which it ts, is quite at variance with the practice in other points of most of the best tivators of the present day. In the decoration of houses, and the treatment of nts individually, there is a very general reversion of the old system; and the a is now—not to render the plants of a character with the regular architectural nmetry of the house, by training with harsh regularity, and tying in all the ots with even exactitude; but just the converse—to divest the structure as far possible of its stiffness, by permitting its inmates to retain more of the loose and wing elegance of nature.

Under this treatment, more of the real character of a species is developed; nts are awarded to the peculiar situations and purposes for which they are best ed by their respective habits; a more extensive variety is furnished, and they exempted from that restrained, tortured appearance, which so largely diminishes pleasure of viewing even what are in themselves most beautiful things. In e, the original *design* of conservatories and greenhouses has undergone an tensive alteration,—from being merely places devoted to the *preservation* of der plants, they are now expected to afford a combination of good cultivation d tasteful arrangement.

Embracing this idea then, of the internal arrangement of floricultural erections, can see nothing objectional in the proposal to add a species of rockery that y enable plants to appear more at home, and enjoy a nearer approximation to stations in which nature has fitted them to flourish, and display themselves in most attractive light. It is, in fact, the dictation of the same principle.

It is almost needless to observe, that rockeries will be most practicable and propriate in the larger class of buildings, particularly in conservatories where re are no plants grown in pots, or they are only admitted to a subordinate tent. Their construction in small houses, must always be in some measure verned by local circumstances, and the particular plan of other arrangements; utmost extent to which they can be consistently carried, is, in surrounding a tank of water; in the concealment of some unavoidable and unsightly featur forming an irregular slope against the back of a house with a lean-to roof; or a span-roofed house to conceal the parapet-wall in the place of a shelf. As, in t last case, it would occupy the place commonly allotted to the heating apparat the floor should be constructed of slabs of wood about four inches broad, and space left beneath for the pipes. By this arrangement the latter would be hidd from the eye; and they would communicate a degree of bottom-heat to t rockery, if a little care were employed in its formation. So conditioned, entertain little doubt that it would be favourable to the cultivation of many those orchidaceous plants, which in their native haunts cling to rocks and stones.

Cisterns for water are necessary appendages to all erections for the manag ment of plants; but they are often awkward and disagreeable objects. T seems to have been so far considered as to lead to the adoption of various modes hiding them; such as, placing them in a back shed, communicating with t house by means of a pipe and tap, and fixing them in the wall and covering different ways. All these, however, are open to objection. Water that has be exposed to the influence of the sun is more favourable to vegetation than th which has been kept from it. Professors Morren have stated that this is owing the greater quantity of oxygen which it holds in solution; and that t oxygenation is determined by the action of solar light on the respiration of pla and animalcules: hence, one reason also why it is better to water in the afterno of a sunny day, than in the morning. Now, by shelving off the upper part the sides of a cistern, and forming a small rockery round the margin, of some ki of stone possessing a rough uneven surface, to be planted with suitable species, should have an object that would be interesting in the most conspicuous station.

For small piles of this nature, the stone called *tufa*, obtained in various pa of Derbyshire, especially about Matlock, is perhaps the most suitable that can selected, both from its peculiar irregular surface and comparative freedom fr harsh angles, and because most plants seem to delight in growing upon it. T material has been employed largely for rockwork in the pleasure-grounds Elvaston Castle, in Derbyshire, the seat of the Earl of Harrington; and, thou too expensive to procure to be employed commonly in extensive works, is decide of a nature most fitting for the purpose in conservatories and other glass-hou Any limestone, or other stone with a similar surface, may be employed.

We would caution our readers, however, against the absurd practice mingling together many different kinds of stone, with the view of thus c tributing something conspicuous. As we have said before, the rock ought to the subordinate feature; the plants which grow upon it are to be looked to for principal ornament.

In the larger description of horticultural buildings, rockeries may be construc on a more extensive scale, and independently of the restrictions to which i necessary to confine them in small houses: to a piece of water they are almo

cessary adjunct. In the great conservatory at Chatsworth, a large mass of rock-
ork has been formed to conceal the staircase which leads up through the middle
it to the gallery; at one end it extends, gradually running out along the margin
a small lake. This immense pile affords admirable sites for various kinds of
ants, both shrubs and rambling species. The northern side is almost exclusively
voted to the fern-tribe and Lycopodiums, which have a peculiarly happy and
easing effect, jutting out their diversified and many-cleft fronds from the chinks
d recesses that abound throughout: and of these none are more remarkably
gaging than the elegant airy-looking species of *Adiantum.* In some parts,
here, from the nature of the work designed, larger rocks have necessarily been
nployed, the surface of which supplied no situation capable of admitting the roots
other plants, the *Ficus repens* planted at the base has completely overspread and
othed the surface with its copious smooth green leaves; the stems clinging
the rock by numerous roots with still firmer tenacity than our own wild ivy;
hilst from the greater tenuity of its shoots, and the comparative smallness of other
rts, it is more manageable and neat. It produces no conspicuous flower, but
is property of attaching itself to stone, together with its rapid extension and
ndsome evergreen character, constitute it one of the most appropriate subjects
at can be selected for mingling amongst other and more gaudy plants; and
pecially for garnishing those rocks which dip to the borders of the water and are
rtially submersed, as it delights in a damp station.

Many cactaceous plants, especially such as the Epiphyllums and *Cereus*
gelliformis, seem to require a place of this kind to exhibit themselves to the
st advantage. Hanging over a projecting piece of rock is just the situation to
splay the beauty of *E. splendidum* and *speciosum.* To these may be added the
tephanotis, various Convolvulaceæ, Combretums and Passifloras; besides small-
owing things, such as the species of *Achimenes*, *Gesneria*, and *Gloxinia;* and
nongst them a few low, bushy, erect-growing shrubs, should be planted on the
oader flats for relief. In the greenhouse and cool conservatory, Mesembryan-
emums and Thunbergias, several Tropœolums, especially *T. tricolorum* and
obbianum, *Clianthus puniceus*, and *Manettia*, will rank among the chief adorn-
ents: and masses of *Lycopodium denticulatum*, and *Oxalis floribunda*, may be
ere and there introduced.

Much of the effect of rockwork of this kind hinges on a judicious selection and
ouping of the plants: this is a work requiring deliberation and study to
complish rightly on a large scale, and must necessarily be left almost entirely
the judgment and good taste of the operator. It must, however, be carried in
ind, that here, as well as in the pleasure-ground, the plants being intended to
nstitute the chief object, they should be planted somewhat closely, so that
getation of some kind may cover the most part of the surface.

In the construction of a large extent of rockery, the general outline should be
st formed; it will be easy afterwards to adapt any site specially for the growth

of a particular species, by employing a quantity of earth (such as the plant delight in), in the different crannies and crevices; and, as in the case of various terrestri orchidaceæ, which naturally choose limestone in preference to any other ston wherever any partiality is displayed, it should be humoured, observing only, tha but one description of rock shall meet the eye. Thus chips of Bath stone, c common sandstone, which imbibe a considerable quantity of moisture, and pa with it slowly, forming a reservoir from which an even and constant amount moisture is supplied, may be used with advantage in places not exposed to view and indeed any porous stone, though differing from that principally employed, ma be used beneath the surface. Rough arms of decayed wood may appear here an there for epiphytal orchidaceæ, without impropriety. Hence, whilst the ey observes nothing unnatural or inconsistent in the groundwork, all the varie vegetation that clothes it, may severally meet with their peculiar wants.

It must be evident that on the irregular, convex, or sloping surface of rocker there will be room for a greater number of plants than can be cultivated on a fl surface. We would therefore suggest for large conservatories that, independent the main rockwork, at least a portion of the borders should be raised in the middl and partly covered with rock; upon which, beneath the partial shade of tall plants, ferns and a few rapid-growing trailing things might be planted.

As large houses are likely soon to become much more frequent than they ha hitherto been, greater facilities will be opened for the formation of glass-hou rockeries. We therefore leave the subject for the present, in the hope that t propriety and ornamental advancement of cultivating tender exotics on rockwor will be more fully appreciated and practically adopted.

ON MANURE.

We have been in the habit of considering as *manure* every decomposable putrescent material which exists naturally in, or is artificially added to, the earth Thus, the fibrous masses left in the ground, green vegetable subtances chopped pieces and dug in, and the black vegetable portions of heath or moor-soil are reality, manures. Earths proper, namely—alumine and clay, silex or sand, chal phosphate of lime, and metallic oxides are themselves almost insoluble; and c act only, or chiefly, as the bed, or fundamental support, of plants: or, to spe more philosophically,—the laboratory—wherein the interchange between t laborated products of decomposition and the roots of the plant is carried on. The general truths are equally applicable to garden and pot-culture—there is distinction so far, between the processes of the florist, the amateur, the nurser man, and market-gardener—all are included therein.

Our present remarks will not apply to solid manures; the subject which clai mediate attention being the application of liquid manure ; a practice which pears to extend with great rapidity. In looking over the weekly publications horticulture, we cannot but be struck with the earnest recommendations of *id manures;* and as it is more than probable that they who look for correct formation in such publications, will attach faith to the advice they there meet ith, it becomes a duty to investigate the principles upon which this practice is unded.

Mr. Knight, of Downton, was perhaps the first person of authority to whose vocacy we may ascribe the introduction of liquid manure : he employed pigeons' ung steeped in water till the fluid acquired a brown tint nearly as deep as that of rter ; and he remained firmly of opinion, that pines, melons, and grapes, were uch assisted by a copious use of this aliment. Being prepared from recent dung the dovecote, he obtained at once a solution of the bile, the urea, and all the line ingredients of the excreta. Gardeners in general may be presumed to have course, of necessity, to the brown drainage of old dunghills; but here the result a widely different affair, because the mass having undergone fermentation the seous and fluid products have been interchangeably attracted and *re-formed* into w chemical combinations : thus, the urea has developed ammonia during the st active stage of heat, the chief part of which passed into the air ; a portion owever, as the mass cools, would sink into the lower parts of the heap or be rried down by rain, and become united with the black, carbonised substance hich is termed humic acid, and gradually ooze through the bulk, forming that rown fluid which is seen in the waste drains and puddles of farm-yards.

The chemical elements disturbed during the fermentation of a manure-heap re numerous: the oxygen and hydrogen combine to produce water ; other ortions uniting with carbon yield acetic acid; and certain saline and hydrorbonaceous substances filtrate away; leaving a cold, blackened mass, which onstitutes the spit-dung of the gardener ; a substance composed chiefly of carbon nd humus, in a condition fitted to evolve a considerable quantity of carbonic acid.

The *liquid drainage* is then a weak compound of salts of potash, soda, and mmonia; the last being united with so much of the humus as to give a deep rown tint to the whole. To appreciate the operation of this liquid, the chemical eader should test a variety of decayed vegetable matters; such, for instance, as old af-mould, very black humous manure, and the brown peat of moors and bogs, y adding a little alkali to each of them. If an ounce of peat-bog or black anure be digested in boiling rain-water more than sufficient to cover the material, ittle colour will, in general, be extracted ; but upon adding, drop by drop, some trong *caustic ammonia,* stirring with a strip of glass after each addition, the fluid vill gradually become of a deep full brown ; the pungent odour of the ammonia eing destroyed till it be added to saturation.

Again, a very little of the brown heath-soil from some parts of Surrey, being o treated, will give intense colour to an ounce or two of water. Pearl-ash and soda will produce similar effects, but ammonia is to be preferred. Persons are a to conclude, that to this brown colouring matter we must ascribe the nutriti qualities of liquid manures; whereas, in fact, it is quite certain that not o particle of the colour can enter the spongiolæ of sound, *undisturbed* roots.

Now, if manure-water be weighed, and then gradually evaporated at a gen heat, to dryness, the weight of colouring matter will be found to be very triflin and yet, gardeners are in the habit of adding much water to this liquid, consideri it too strong for plants growing in pots. Having thus, by dilution, reduced t tint to that of pale malt liquor, what activity can be expected from it? Or such liquid manure be of any avail at all, to what material can we refer nutritive effects, since it is admitted that the particles of colour, minute as th must be, are still too gross to enter the pores of the roots?

To answer these queries by farther experiment, and thus gain a little m light upon the subject,—let a few grains of powdered quicklime be stirred i the coloured fluid and suffered to subside; after a few minutes it will be seen t the colour of the liquid is lost; that it has become quite pale; while the sedim itself has acquired a dingy brown tinge, and a flocculent texture. As a conve of this experiment, let brown peat or black manure be worked up with one-th the quantity of quicklime, and diluted with hot water sufficient to allow of f subsidence. After stirring from time to time, the compound matter will subsi leaving the super-natant liquor nearly devoid of colour:—and now caus ammonia may be added to excess, without effecting any change of tint, the li acting by more powerful affinity, and fixing the humic extractive in the form an insoluble humate of lime.

In this way it is that lime acts as the specific reclaimer of waste and barr peat-bogs, rendering them fertile by the *abstraction* and *fixation* of that inert a deleterious vegetable matter which is an antagonist to vegetation. And thus, an induction from undeniable chemical facts, we begin to perceive that we h long been misled by crude theories and empirical practice.

Liquid manures, therefore, act by the salts which they contain, not by colouring solution of humus; and thus, also, we may be permitted to sanction cautious application of artificially prepared fluids, as for instance "Potter's Liqu Guano," "Humphreys' Inodorous Compound," and other fertilizers, which neither more nor less than solutions of chemical salts; among the safest, and m effectual of which, are the sulphate of ammonia, nitrate of potassa (salt-petr and sulphate of soda.

Lime is the interpreter of this new and most intelligible theory; for, by it important fact has been ascertained, that, for all the poisonous vegetable extract peat-bogs, in old pastures, in gardens and soils over-glutted with manure, exerts the most powerful affinity, attracting the humic acid, not only from alkal solutions, but from the body of the soil itself, fixing it in a condition of absol insolubility, and thereby rendering the poison quite innocuous.

Let us not be misunderstood, however; for when pure turfy loam without dry nure is used in pot-culture, the slight tinge of colour in the liquid superadded not be productive of injury. What we wish to combat, is the false notion, *t the colouring matter is the manure.* The truth must prevail, in proportion as ence and faithful analysis extend their influence; yet, while we assert that the emical salts of steeped manures are the fertilisers, and that if the colouring matter drainage from the mixen were perfectly discharged by lime not used in excess, the ar fluid would retain its efficiency, we still give the preference to these agents, e products of natural fermentation, over any salts prepared by art in the laboratory.

As an analogy, we would cite the well-authenticated facts of the rapid germi- tion of seeds which have passed through the viscera of birds. The Pimento ees which furnish the allspice of commerce, are quickly raised by berries, thus npregnated by animal juices. Nature presents numerous similar examples, hich art cannot imitate; and therefore we arrive at the inference, that as the turally prepared liquid manures are the products of a species of slow combustion which vegetable and animal matters are resolved into their elements, they must most congenial to plants, as in fact they derive their origin from them.

While thus sanctioning the use of animal liquid manure, we must protest gainst a dirty and injurious method which we have seen freely practised; namely, applying fresh cow-dung, stirred up in a tub of water, till it can be poured rough the nozzle of a water-pot. The water passes down and conveys to the il the dissolved salts, and liquefied gall of the manure; but a cake of dry, effete atter is deposited on the surface, which prevents the ingress of air and of water. he reason assigned is, that the manure keeps the plant cool! This is a vulgar rror which may lead to much mischief.

CULTURAL HINTS.

Things in themselves apparently very insignificant are often found upon nvestigation to exert a powerful influence on the welfare of plants under artificial reatment, even when viewed abstractedly from other conditions, and no more scribed to their action than can be legitimately and directly *proved* to spring rom them. And though many of the operations of the cultivator may, separately onsidered, seem scarcely to affect his charge, yet it is a number of these working ogether, either for an advancing or a detrimental end, that forms the chasm etween the best and the worst of culture. The more, therefore, that we can nultiply the former and diminish the latter, the more completely shall we develope he capabilities of plants.

However trivial a thing may appear when viewed singly, or however circumscribed the limits of its operation, so long as it can be discovered to exert ameliorating influence, it will be recognised and practised by the intellige cultivator who determines to be satisfied with nothing short of the highe standard of excellence attainable, as a step on the way to his promised goal. I must ever be as ready to snatch at the little helps, as to seize on the greater.

Without further preface, we shall now proceed to give a tangible turn these observations by considering a condition connected with the management plants in pots, which is certainly hostile to their prosperity, and, we believe, mo frequently the result of thoughtlessness than ignorance. We allude to the exposu of the pots in which plants are grown, to the direct action of a bright sun.

No cultivator of the most moderate experience can have failed to observe t dessicating effects which it produces on the soil which the pot contains. Tl result is the first and most apparent, and may, perhaps, appear to be easi remedied by the application of water, and of no further moment; but it is not t only consequence, for it brings in its train a series of evils, which frequent accomplish the partial or entire defoliation of the stem, and even the ve destruction of the vital principle itself. We more than suspect it to be the hin upon which many a healthy specimen has suddenly turned, with a few days sunny weather, to a state fit only for the compost yard. The present supply fluid from the roots is not only cut off, through those which are usually the mo active being thus deprived of moisture, but the delicate rootlets themselves are al injured—withered, and rendered incapable of fulfilling their office; or, as it technically expressed, "they are burnt." Besides, the mechanical arrangement the soil is disturbed, by the excessive waterings rendered necessary to keep moist washing the particles closer together.

And yet, when we look at many instances of the practice even of our be cultivators, how often do we find the admonition conveyed by repeated injuries a disease engendered by the thoughtless exposure of pots to the sun, either slight or entirely disregarded! We acknowledge that in many cases it is not an ea matter to shelter them; but this is no reason why it should be neglected whenev it is practicable to obviate it. There is no genuine obstacle to interfere with the pots being immured from the sun's rays, which contain the plants commonly s out of the greenhouse in the summer season. Plants so situated are more complete laid open to injury from this source, than those retained in the houses or fram. The latter are partially protected by the sash-bars; by the refraction and diffusi of light in passing through glass; and by the shades which are now alm universally interposed. The former are without these lenitives, except here a there the last; and they are at the same time open to another evil, which materia increases the disparity: there are the variations which are so constantly taking pl in the state of the soil—its temperature and moisture, as the weather varies fr wet to windy, or clear and sunny; and this frequent and sometimes excessi inconstancy, renders the roots far more susceptible of harm, both from excessi eat, and excessive wet. The labour of plunging is far from adequate to that equired for extra watering; neither is the loss of those roots which sometimes ush through the bottom commensurate with the injury which the mass receive rom exposure, and its concomitant, additional watering.

The means for protecting the pots of plants kept in houses, however, is not uite so manifest; but, we are persuaded, far more might be done than has yet een attempted expressly with a view to the mitigation of this evil. Much might e effected in the way of arrangement, by the judicious intermixture of prostrate pecies, amongst those which leave their pots naked and exposed; others may be hielded by early prevailing upon the branches to spread so as to project beyond he pot; and the shoots of many may be bent and trained downwards so as almost o conceal the pots from view, as we now and then see practised with Chinese Azaleas, leguminose climbers, and a few other things. And these latter methods would have a far more extensive influence on the health and copious flowering of he plants, than that derived immediately from the pots being covered. Exuberant growth would be prevented, and maturity promoted; the check on the upward current of the sap would cause it to expand more liberally in lateral developments; and we believe, also, that in the autumn much of the shading practised in plant-houses might be safely and beneficially dispensed with, provided hey were sufficiently defended. Plants from lower latitudes which occupy exposed stations in their native locality, must evidently experience a far more ntense light than in England; hence it appears irrational to diminish it still further. Those plants which are naturally found in situations where they are screened from the direct action of the sun, will of course demand some amount of shade; but others, such as Cape Heaths for instance, will thrive as well in the full blaze of a midsummer's sun, if precautions are taken to ward off its beams from the pots, as though the whole plant were shaded; and their shoots will be far more completely ripened, and thereby less liable to suffer in winter. If the pots however are not shaded, the leaves sicken and fall off, and growth is impeded and weakened or entirely stopped.

The natural shade which the stems and foliage of plants afford to the roots, is often most untastefully prevented by training those of a prostrate habit in an upright position, with the avowed intention of showing them to greater advantage. In some plants this end may be partly answered, but a contrary result is far more general; they are robbed of that free-waving elegance of growth with which nature had invested them, and which so much enhances the effect of their floral beauty.

Orchidaceous plants, which from the secluded atmosphere of the houses devoted to them, can hardly demand it for the sake of shade, have frequently the material that envelopes the roots surrounded with and forming a site for the growth of Ferns and Lycopodiums. If this serves no other purpose than that of ornament, it is worthy of imitation. And a modification to circumstances of the same system may be made subservient to the shelter of the roots of ordinary greenhou and stove-plants cultivated in pots. We have seen some contrivances of th nature in the neighbourhood of London. The pot holding the plant to be shade is set in a saucer or shallow flat pan, having a hole in the bottom immediatel beneath that of the pot, so as not to interfere with drainage. The saucer employ must be sufficiently large to leave a space round the pot to be filled with eart In this the Lycopodiums are to be planted, and will soon envelope the sides of tl pot, and effectually shield it from the sun; and, moreover, when all the pots on shelf are treated so, these plants will spread from one to another, and constitute living carpet of the most enlivening green.

In some instances the same end is answered by having about two inches of sc spread on the shelf itself before the pots are placed, and the Lycopodiums plante in it. In this way they grow still more luxuriantly, and soon spread to fill u any vacancy caused by the removal of a plant, or any alteration in the position the pots. And besides affording shade to the pots, it helps to maintain a great regularity in the moisture of the atmosphere.

We have no doubt that many other methods of shading pots might be resort to with propriety and success. That it is beneficial to do so, every one who h inserted a plant with its pot in a vase, filling up the vacuity between the two wi moss, or plunged it in a bed of ashes, must be convinced: the soil would be ke more evenly moist, without saturation—a condition always to be aimed a Plants rarely succeed well when they are exposed to sudden extremes of droug and humidity during their growing time; and the excessive watering which t copious evaporation constantly proceeding demands, contributes also to wa together the particles of earth, deprive it of its nutritive properties, and impe the needful circulation of fluids throughout its bulk.

REVIEWS.

The Lady's Country Companion; or, How to Enjoy a Country Life Rationally. By M Loudon. With an Engraving on Steel, and Illustrations on Wood. Longman & Co.

Persons who have been long accustomed to a town life are wont to complain of the duln of the country—its inconveniences, and the want of society and amusement. This work, fr the pen of the widow of the late well-known Mr. Loudon, is written expressly for the purpose showing how enjoyment and pleasure may be experienced by observing nature, and occupy the mind with rural pursuits; and how inconveniences may be lessened or prevented throug little forethought and management. It forms a handsome thick duodecimo volume, divided i six books, containing letters on the House, the Garden, Domestic Animals, Rural Wal Country Amusements, and Country Duties; and "is intended principally for the use of lad who have been brought up in town, but who, from circumstances, have been induced to reside the country." From the extent and variety of information which the volume exhibits, we n safely recommend it to the perusal of *all*—satisfied that no lady, however well versed in matters it treats upon, can read it without finding much useful instruction pleasantly convey is not filled with the visionary ideas of a mere theorist, but the experience of one who has ealised what she teaches.

A considerable portion of the work is devoted to the Garden, and abounds with general prac-cal hints for the culture of flowers, many of which will meet the wants of those amateurs who erely cultivate a small plot, and a few plants in a window. Our space forbids us to indulge in any extracts. The following will serve to give some idea of the manner in which each subject handled; and for further information, we must refer our readers to the work itself:—

> “I would advise you to have a few plants in pots in the east window. Remember though, ou must have only a few plants, as more than five or six would give the window the appearance f being a substitute for a greenhouse—a most unpleasant idea at any time, and particularly so n the country. They should be in large handsome pots, standing in saucers, for the sake of eanliness; and care should be taken not to fill the pots with earth higher than to within an nch from the brim, so as to leave plenty of room for watering. The space left should be filled ith water every morning, and the water suffered to run through the pots into the saucers, which, fter waiting about ten minutes, or more if necessary, so as to allow as much water as possible drain through the earth in the pots, should be emptied, as nothing can be more injurious to ost kinds of plants in pots than to let water stand in their saucers. If a constant fire be kept n the room, so that the air is always hot and dry, the pots in which the plants are kept should e set within other pots, and the space between the two filled with moss. This is also a good lan with plants in balconies, to prevent the roots of the plants becoming dry and withered. lants in rooms always require a great deal more water than plants in a greenhouse, to coun-eract the dry atmosphere of a living room; and, when practicable, they should be set out in the ain, or syringed over head, to wash off the dust, which, from sweeping the room, and other auses, will inevitably rest on the leaves, and choke up their pores, thus impeding the action of hose very important organs. Air also is as essential to the health of plants as it is to that of uman beings, and both live by decomposing it.”

The Principles of Practical Gardening. By George W. Johnson, Esq. R. Baldwin.

ALTHOUGH we do not hold ourselves to subscribe to all the contents of this book, we can ruly say that it contains a fund of useful information on the subjects most essential to those ho embark in the culture of plants. It consists of nine chapters, following a plant through ll its stages, from the germination of the seed to its final decay; and exhibiting the main facts n vegetable physiology and chemistry applied to the ordinary operations of gardening, and ritten in a perspicuous and popular style. We may instance the following paragraph (from . 327, where the writer is speaking of chemical affinities) as a specimen:—

> “So long as a plant lives, it triumphs over those affinities. Its roots overcome the affinity f the soil, and take from it its moisture; its leaves overcome the affinity of the atmosphere, and eprive it of the watery vapour it has in solution. The internal vessels overcome numerous ffinities; and, by the decomposition of carbonic acid and water, perform within their simple ube that which can only be effected by the chemist's most powerful agents. These triumphs ver chemical affinities—and that most characteristic of triumphs, its avoidance of putrefaction —endure in the same individual, often for centuries of years; it is the most marked of the riumphs of vitality; its prime distinction as a creature capable, for a time, of defying the laws which doom all organic matters to return to the dust from which they were created; for no ooner does that vitality cease, than the heat, the moisture, and the gases which vitality com-pelled to minister to the plant's luxuriance and health, now triumph in their turn, and serve to estroy that form which they had aided to sustain.”

Here we have an epitome of the life of a plant; besides its amplification, the author shows ow the affinities here spoken of are affected by extraneous powers; in other words, he deduces he theory of gardening from the results of its practical operations examined by the lights of cience. It is a work which every young gardener ought to possess.

FLORICULTURAL NOTICES.

NEW OR BEAUTIFUL PLANTS FIGURED IN THE LEADING BOTANICAL PERIODICALS FOR JUNE.

Arctosta'phylos ni'tida. This name (*Anglicised* "Shining-leaved Bearberry") is given to a plant raised in the Garden of the Horticultural Society from seeds obtained by G. F Dickson, Esq., in Mexico. Mr. Hartweg also found it on the Mexican mountains, called Carmen. It usually flowers both in spring and autumn. "It forms a handsome evergreen shrub, five or six feet high, growing readily in any good loamy soil, and capable of enduring a mild winter in the open border. It would be a fine plant for the climate of Devonshire or Cornwall." From *A. argùta* it is distinguished principally by its branched hispid racemes.—*Bot Reg.* 32.

Bolbophy'llum Careya'num. This is a native of Nepal and Martaban, and has been ten o twelve years in this country. "It is more curious than showy." It has a rather large pseudo bulb, with a solitary leaf on the top, and a dense short head of yellow flowers, mottled with re springing from the bottom.—*Bot. Mag.* 4166.

Caja'nus bi'color. "The Pigeon-pea, or Doll, as it is called in the East Indies, is said to b so named because its seeds are the favourite food of wild pigeons. It is, however, extensivel used by man, being cultivated very generally in both the East and West Indies. In the opinio of some botanists, only one species exists, of which there are two varieties—the one with flower entirely yellow, and two or three seeds in each pod, which is never spotted; the other (th present one) with flowers streaked externally with crimson, and having four or five seeds in pod, which is marbled with dark streaks. Others regard them as distinct species. The first i called the No-eye Pea in the West Indies, and the latter the Congo Pea. It was reared in th Horticultural Society's Garden from seeds collected near the town of Jellalabad, and presente by Sir Henry Fletcher. It grows about eighteen inches high, flowers from June to August, an appears to be a half-hardy annual or biennial. In the *Flora of Jamaica*, by Dr. Macfadyen p. 297, are the following remarks:—"The general appearance of both is very much alike; an they can scarcely, previous to flowering, be distinguished from one another, except that th leaves of *C. flavus* are rather smaller and finer to the touch." The No-eye Pea is the more deli cate, and is nearly equal to the English Pea; the other species is coarser, and chiefly used b the negroes. Hybrid varieties sometimes appear, from the two being planted close togethe They stand for several years, shedding their leaves annually, and reproducing them with flower early in summer. The crop is gathered in autumn. They are among the most valuable of tro pical plants, require no particular care or trouble, and thrive in the poorest soil. "They are t be found round every cottage in the island, growing luxuriantly in the parched savannah an mountain declivity, as well as in the more fertile and seasonable districts." (It is less valuabl in a floricultural light.)—*Bot. Reg.* 31.

Echinocac'tus oxygo'nus. "Scarcely any plant possesses more noble or more lovely blos soms than the present; and they are the more striking from the circumstance of their bein produced from so graceless and small a trunk. It is, moreover, a free flowering plant in th month of May. The duration of the blossoms is, in cloudy weather at least, of two days. Th species is said to be a native of Brazil." The plant is sub-globose, rather longer than broad, an usually from six inches to a foot high. The flowers are produced upon the top, and consist an upright trumpet-formed tube several inches long, and spreading segments of a fine ros colour, the interior being filled up with straw-coloured stamens. [This is one of a class of plant we should like to see more commonly cultivated: some of them, like this, have exceedingl attractive blossoms; and there is much of prejudice in the current idea that they are difficult flower. *Bot. Mag.*, 4162.

Epide'ndrum longico'lle. This is a slender caulescent species, with linear-lanceolate leave and a terminal cluster of white flowers, the fragrance of which constitutes the most interestin quality the species possesses. It is a native of Demerara. *Bot. Mag.*, 4165.

E'ria Dillwy'nii. A new species, named in compliment to Dillwyn Llewelyn, Esq., Pennleegar, in whose collection specimens, received through Mr. Cuming from the Philippin ls ıds, flowered in March, 1843. Mr. Llewelyn says, "It is valuable from the great facility wi which it submits to cultivation, and the profusion with which it bears its flowers. It blossc ed in my stove last year ; and this season it is a beautiful object, with seven or eight bulbs, ea bearing two spikes of flowers." It has oblong pseudo-bulbs, with about four leaves, six to ei t inches long on the top. The flowers are white, or cream-coloured, arranged moderately cl upon an erect raceme, of about the same length as the leaves. *Bot. Mag.*, 4163. [The sa e species is now flowering at S. Rucker, Esq.'s, Wandsworth.]

ıyca'ste gigante'a. "Although the colours of this species are not gay, yet its large size, and th great height to which its flowering stem rises (full two feet), are remarkable features; b les which, its flowers are among the largest in the race of Orchids. Mr. Hartweg found it in uayaquil, flowering in the month of August, at a place called the Quebrada de las Juntas ; a from his dried specimens it was described in 1843." The species has also been introduced fr La Guayra to Belgium, and named *Maxillaria Heynderycxii* by Professor Morren, (after S itor Heynderycx, V. P. of the Royal Agric. and Bot. Soc. of Ghent,) who was apparently u quainted with the earlier name. *Bot. Reg.*, 34.

Masdeva'llia fenestra'ta. A curious orchid, received from Brazil several years ago by M srs. Loddiges, and lately at Kew from Jamaica. The species grows in clusters, each plant c isting of a stem or petiole, terminated by a solitary (rarely two) oblong-elliptical leaf. The fl ers proceed from the base of the leaf, and are "not only singular in colour, being externally o deep blackish blood-colour, but still more singular in form, with the sepals united below and at ie apex, which is open and window-like ; the whole representing the head of a bird, with a p oration where the eyes should be." *Bot. Mag.*, 4164.

Schombur'gkia tibi'cinis *var.* grandiflo'ra. A noble specimen of this variety flowered in M , 1844, in the collection of R. Hanbury, Esq., "the pseudo-bulbs being fifteen inches long, a the flowering stem five feet high." "It is certainly the same species as that named by Mr. B eman '*tibicinis*,' because the hollow pseudo-bulbs are used as trumpets by the Indian children o Ionduras." The present variety has, however, larger flowers, which are "far paler on the o side, and have a broader lip, whose middle lobe is not rich violet, but yellow, with a white or p ple border. In this instance the plant realises the expectations that had been formed of it : i ther cases, it has disappointed them." *Bot. Reg.*, 30.

Spiræa Lindleyana. Plants of this species raised from seeds, presented to the Horticult l Society by the Directors of the East India Company, produce flowers abundantly between J and September. It bears a near resemblance to the Sorb-leaved Spiræa, "differing chiefly i s greater stature and more numerous leaflets, which have a long taper point, and a distinctly o e outline ; whilst those of *S. Sorbifolia* are nearly oval. It is a native of the Himalayas. Dr. W llich's collectors found it in Kemaon and Sirmore ; and Dr. Royle also mentions it as inhab ig those countries." It has stood three winters at Chiswick without suffering. Last winter, h ever, it was killed as far as the ground, but is again shooting up. *Bot. Reg.*, 33.

W OR INTERESTING PLANTS RECENTLY FLOWERED IN THE PRINCIPAL METROPOLITAN NURSERIES AND GARDENS.

Angulo'a uniflo'ra *var.* A superior variety was exhibited by Messrs. Veitch, of Exeter, at t Regent's Park. It differs from other specimens in having flowers of a delicate pink hue, i ead of cream-coloured.

Burto'nia brunioi'des. Recently introduced from New Holland, and exhibited by Messrs. L ombe, Pince, & Co., of Exeter. It is a small villous shrub with short linear leaves, and r ıer flat terminal heads of yellow flowers. It apparently possesses a more vigorous habit than *I onferta.*

Chæno'stoma polya'nthum. Specimens of this interesting little greenhouse plant are now fl ering at Messrs. Henderson's Nursery. It is a product of South Africa, about Algoa Bay, a the Zwartkops river, from whence it was first transferred to the continental nurseries, and t ugh them has reached England. From its dwarf habit, and numerous loose racemes of s ll, labiate, lavender-blue flowers, with orange throat, it promises to be a useful species. We s it in flower last autumn at Mr. Knight's and Mr. Lowe's, from which it would appear to blossom at any season, if kept growing. It may be increased by cuttings, or seeds, which are matu freely. Any common garden soil will suit it.

Dendro'bium amœ'num. A pretty species in the way of, but inferior to, *D. Devonianum.* t blooms on the denuded stems, which are long and slender, with rather distant nodes. e flowers are of a delicate blush tint, with an eye or spot of rich purple near the tip of each se l and petal: the lip is pale yellow at the foot, and blush coloured with a broad spot of pu e towards the top. It is flowering with S. Rucker, Esq., Wandsworth.

Dendro'bium ano'smum. Dr. Lindley has given this name to a *Dendrobium* greatly resemb g *D. macrophyllum,* which has recently been in bloom in the princely collection of Messrs. Loddi s, at the Hackney Nursery. It was introduced by those gentlemen in 1840, from the Philipp e Islands. All the parts of the flower being shorter and more obtuse than those of *D. ma -phyllum,* free from the undulating surface, and the powerful and somewhat unpleasant rhub b scent, whilst the colours are precisely similar, we consider it a superior kind for the cultiva . Besides these prominent distinctions, it differs in the column being stouter and more expose o view—the sides of the lip scarcely meeting over it, whilst in *macrophyllum* they inclose it, d wrap over each other. The petals also are less strongly reticulated. In Dr. Lindley's not , he expresses a doubt upon the propriety of considering it as a distinct species—of course is cannot be decided now, until another year's flowers afford the opportunity for fur r examination. It ought to be grown in a basket, or fastened to a block, and suspended.

Gompholo'bium —— ? A new species of this genus was contributed by Messrs. Luco e, Pince, & Co., of Exeter, to the exhibition in the Royal Botanic Gardens, Regent's Park. It possesses a vigorous habit, of a trailing character, and will hence need some support. It a much stronger plant than *G. polymorphum,* and flowers quite as profusely. The bloss ns resemble that species considerably, both in size and colour. It will be a desirable species r exhibition.

Hi'ndsia longiflo'ra alba. Instead of the blue tint of the original species, the flower of this are of a delicate pure white: they are pleasantly scented and produced in large clusters at e top of the shoots. It is at Messrs. Henderson's Nursery.

Hydro'lea spino'sa. In the Kew Gardens we noticed a fine plant of this old stove sh b, which certainly merits a place in every collection. Imagine a plant with small, ovate, la e-shaped leaves, sending up strong stems, two or three feet high, and throwing out numerous t gs from every side upon all its length, every one of which, from the foot of the plant to its ut st height, are appropriately furnished with foliage, and profusely adorned with small, brilliant-l e, *convolvulus*-like flowers. Plants of this character, and especially those with flowers of a co r so universally admired, are just what the cultivator wants; and as it grows vigorously, and th much rapidity, we hope soon to see its merits more generally recognised. It is a native of S th America, where it is found inhabiting stations bordering on rivulets; from which we may er that considerable humidity will be necessary, both in the atmosphere and at the roots, to bri it to its most perfect state.

Hypocy'rta di'scolor. This name has been applied by Dr. Lindley to the plant notice at p. 273 of vol. xi. and known in gardens as *Columnea Zebrina.* It is "closely allie to *H. aggregàta,* from which it differs in its smooth long-stalked leaves, large calyx, and sm er solitary flowers." The foliage is handsome, but the flowers are not very showy, and, in d, are partly concealed by their situation.

Mormo'des luxa'tum. A strong-growing plant, with the habit of the large Cataséta. he cream-coloured flowers are large, fragrant, and showy, and remarkable for the singular co r-tion of their parts. They are almost globular, with an aperture on one side, through wh a dark chocolate-coloured patch or streak may be seen down the centre of the lip. Mr. Rt er has a flowering specimen.

Mussæ'nda macrophy'lla. A fine Cinchonaceous shrub, introduced from Nepal, of e el-lent habit, with large handsome foliage and terminal heads of orange flowers surrounded by ite floral leaves. It is blooming in a greenhouse at Messrs. Knight and Perry's, Chelsea.

Phlox Drummondii alba. This is a variety with white flowers, apparently well suite for beds in the flower-garden, though not so pretty as the parent species. It may be seen flow ng at Mr. Groom's Nursery, Clapham Rise.

Prostranthe'ra lasia'nthos. It seems strange that so fine a plant as this would be for e ibitors should scarcely be seen in collections. A specimen, nearly ten feet high, is now li ally covered with blossoms in the Royal Botanic Gardens at Kew. It is a shrubby plant, w i fine oblong lance-shaped toothed foliage, and produces its large red and white flowers in p icled racemes. From the appearance of the species, we have no hesitation in saying that p its a foot high will flower profusely. Several other species of this New Holland genus, d ribed in botanical works, but yet unintroduced, are said to be equally fine.

OPERATIONS FOR JULY.

In a general way, we experience more dry and warm weather in July than in any other n th of the year ; and when this proves extreme, it tells prejudicially on those summer garden e tics which have not yet grown sufficiently to constitute a cover to the bed that holds them, and s de it from the scorching and drying influence of the sun. We spoke last month of the utility o ome interposing substance to check evaporation from the soil when the plants are newly placed i he borders of the flower-garden, and before they have sent out fresh roots, and become suffi c tly established. The difficulty of managing this in a tidy and unobtrusive way, is an objection t ts continuance longer than it is absolutely indispensable.

As a means of retaining moisture in the soil, as well as of improving the appearance to the e , the practice of hoeing is rarely so repeatedly resorted to in the course of the season as it o ht to be. The insufficiency of hands to accomplish the multifarious operations of a garden at t proper time, and in a neat tasteful style, through the summer months, is too often a just e use for passing over those that are least pressing ; but we have also met with cultivators, and v y lately, who neglect hoeing from an idea that it assists in extracting any little moisture that r ains in the soil. On a superficial glance such would appear to be really the truth, but a slight i estigation alone is sufficient to convince to the contrary. Where the surface of the soil is kept l e, the bulk beneath continues longer in a humid state. Besides, a loose surface would seem t attract moisture ; for, if we examine a plot of ground where the soil has been lately stirred, a another in a hard crusted state, we shall find a more abundant deposit of dew upon the former t n upon the latter. This must be invigorating to the plants during the bright summer months ; i act, experience incontestably proves that, the more hoeing is attended to, the more flourishing i he growth of the plants, other requisites being equal. Hoeing is also a better means of eradi c ng weeds, if repeatedly and timely performed, than hand-weeding ; but whether weeds exist c ict, the opportunity of dry weather after rain, should always be seized upon to hoe the surface, e ecially of stiff clayey soils. There is less occasion for it in light sandy earth which continues c n and crumbling ; nevertheless, it is the province of the culturist to combine to the utmost, a earance with utility, in the management of his charge, and there are few instances among his c rations in which we find those two ends more faithfully answered by the same work. In fact t hoe must never lie idle whilst summer lasts : it keeps the ground in a favourable state for t growth of the plants, is the best safeguard from a weedy flower-plot, and imparts a freshness t he appearance of the ground.

Most of the several attentions which are now becoming more especially essential in the p asure-ground to render it worthy of the name, may in themselves appear somewhat insig i cant; without them, however, we must not expect to realise anything beyond a commonplace e ct. And yet how many of them are constantly neglected ! There cannot be a doubt but the r noval of the rudimentary seed-pods of the *Rhododendron* when the flowers cease to be orna r ntal, not only improves the appearance of the plant for the remainder of the year, but confers a irect benefit upon it, in preventing its energies being wasted in the formation of parts that c tribute no ornament, and reserving them to promote vigour and future floweriness ; yet these l ls are suffered to remain and ripen in almost every garden. Again, there is the petals of the r e shed over the borders and the lawn, or hanging still upon the plant in brown withered c sters, impairing the effect of those in full-blown perfection, and looking not a little untidy. ny plants, moreover, which flower on the current season's shoots are induced to flower longer and more abundantly, by merely nipping off the earlier blossoms as their beauty becomes defa l. Among numbers of greenhouse shrubs, which flower from month to month, and in which e opening blossoms are increased in size when the dead and the dying are abstracted, we y instance the *Pimelea decussata*, which almost doubles the magnitude of its heads with is attention. We need not say more ; a short trial will best convince of the extent of its influen .

An improvement may be effected in the flowering of China Roses, by continually cutting k those shoots which have done flowering : a more regular and plentiful succession will be is maintained. The length of shoot left must be regulated by the season : during the pre nt month they may be cut low, as the most vigorous-flowering shoots will always be obtained f n near the base ; but in after months they must be more sparingly pruned, because the grov s produced from the buds higher on the former shoot, will sooner reach a flowering state t n those which issue from the vicinity of its base.

Whatever spring-flowering bulbs yet remain in any of the flower-beds, may, for the most p t, be removed safely in the course of the present month. If the ground is to be planted, and y are not sufficiently ripened, they may be taken with what soil will adhere to them, to e reserve garden. Others must be stored up till the period for re-planting. Bulbs in pots at have finished blooming, should be placed by themselves to ripen ; where they will be kept y, and fully exposed to the sun. The tubers of Tropœolums which are sufficiently matured, ma e taken out of the pots and packed in bags of sand till they begin to sprout again. It is a g d plan before repotting, to lay them in boxes of dry sand in a warm place, till the shoots have gr n two or three inches in length.

Greenhouse plants in pots, such as Pelargoniums that have done flowering, should be at down, the balls of earth reduced, the roots dressed, and then replaced with fresh soil in sm er pots, and committed to a frame to renew their growth. Cuttings may be prepared from the p ts cut away, and encouraged to grow, so that they may make strong plants before winter.

Roses may be increased during the present month both by budding and layering. La rs formed at this season root more readily than those done in spring. This is the proper time so for layering Carnations, &c , and putting in pipings of pinks. An extensive stock of Pansi of the commoner kinds should be raised this month to fill the flower-beds in spring.

Greenhouse plants set out in the open air in pots, should be as much as possible secured f m strong winds, and carefully supplied with water if the weather prove dry. A copious syrin g overhead will be beneficial in the evening of sunny days, and will help to keep the foliage c r of dust, and free from the inroads of insects.

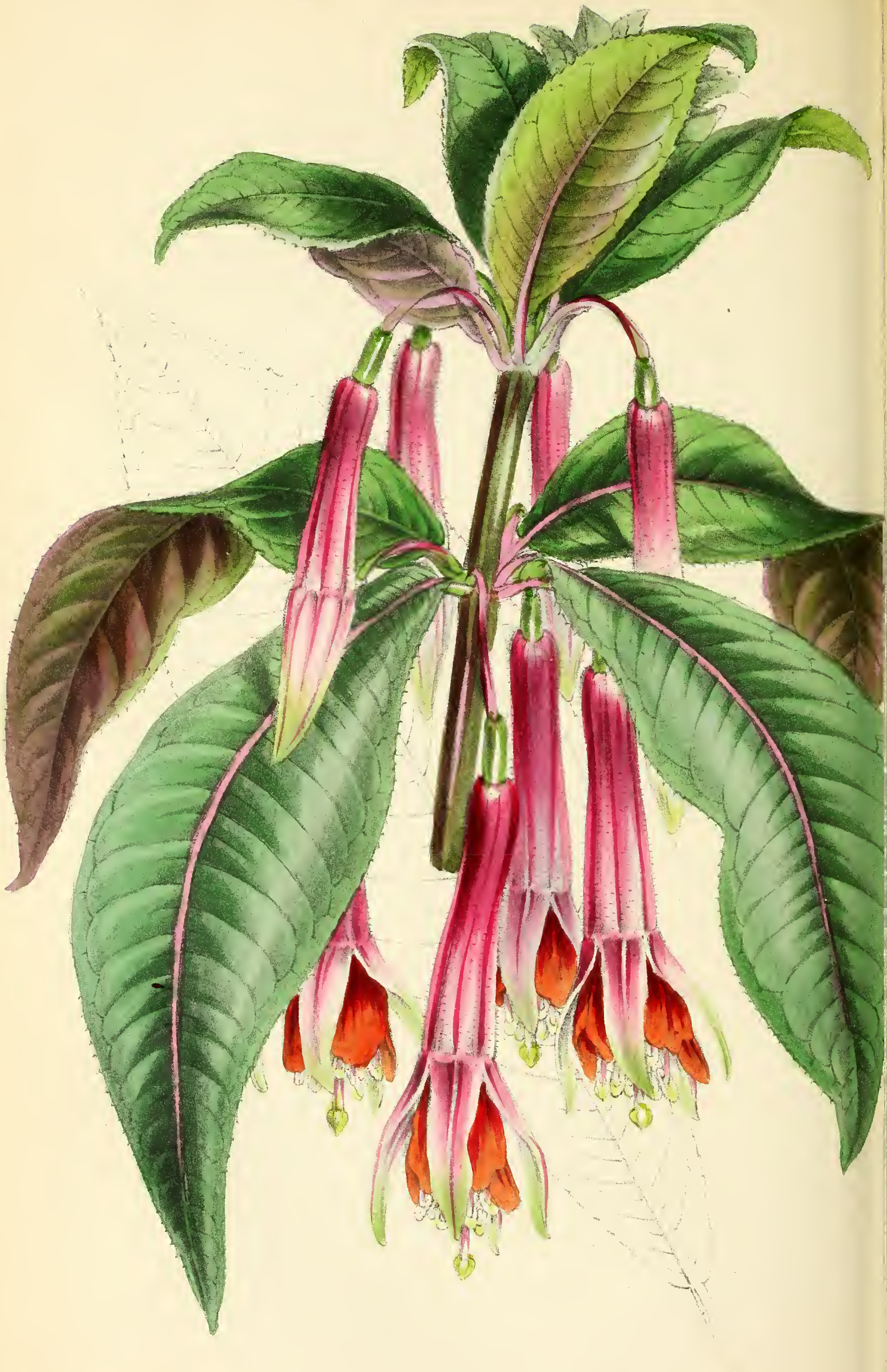
It will be quite necessary to have the greenhouse shaded for at least four or five hours i e after part of clear days. The material employed for this purpose should be thin and light, m ly sufficient to mellow the sunlight. Shade will be required the greater part of the day in e orchidaceous house ; but here, also, it would be advisable to adopt some lighter substance an what we generally find in use. The advantages of span-roofed houses with regard to sha g, are very perspicuous ; one side only requiring to be shaded in the morning and the other i e afternoon.

As the new shoots and pseudo-bulbs of most orchidaceous plants will now be far advanc in growth, and about the maximum of their vigour, they will require a larger supply of humidi in the atmosphere and at the roots, than at any other season of the year. Nevertheless, her as well as in all other plant structures, syringing the plants, and damping the floors, must be p ly regulated by the external weather.

Pits and frames will be very useful now for bringing forward a supply of soft-wooded, q k-growing plants to maintain a good show of flowers in the greenhouse. For this purpose Bal ns and other tender annuals should not be despised for their commonness.

Where there is an Arboretum, this, and the following months of summer, are the bes or examining the correctness of the names attached to the plants. As loose tallies are apt t et misplaced through the inadvertency of workmen, it is advisable, in private collections, to ve also others stamped with numbers fastened to the trees and shrubs, with reference to a catal e, to avoid confusion.

Erratum.—At p. 109, second line from the bottom, instead of "*Gardening for Ladies*," ad "*Ladies' Country Companion.*"



Holden del & Lith

Fuchsia serratifolia.

FÚCHSIA SERRATIFÒLIA.

(Saw-leaved Fuchsia.)

Class.		*Order.*
OCTANDRIA.		MONOGYNIA.

Natural Order.
ONAGRACEÆ.

Generic Character.—*Calyx* tube adhering to the varium at the base, and drawn out at the apex into cylindrical four-cleft tube, whose lobes soon fall off. *etals* four, alternating with the lobes of the calyx, nd inserted in the upper part of the tube, very arely wanting. *Stamens* eight. *Ovarium* crowned y an urceolate gland. *Style* filiform, crowned by a apitate stigma. *Berry* oblong, or ovate-globose, our-valved, four-celled, many-seeded.

Specific Character.—*Plant* a tall shrub. *Leaves* three or four in a whorl, rarely opposite, oblong-lanceolate, acute, serrated, petiolate. *Peduncles* solitary, axillary, single-flowered. *Flowers* nodding or drooping. *Calyx* with a long tube, and spreading lanceolate acuminate segments. *Petals* obovate, waved, shorter than the segments of the calyx. *Stamens* unequal. *Style* rather longer than the stamens. *Stigma* thick, club-shaped. *Ovary* oblong, glabrous.

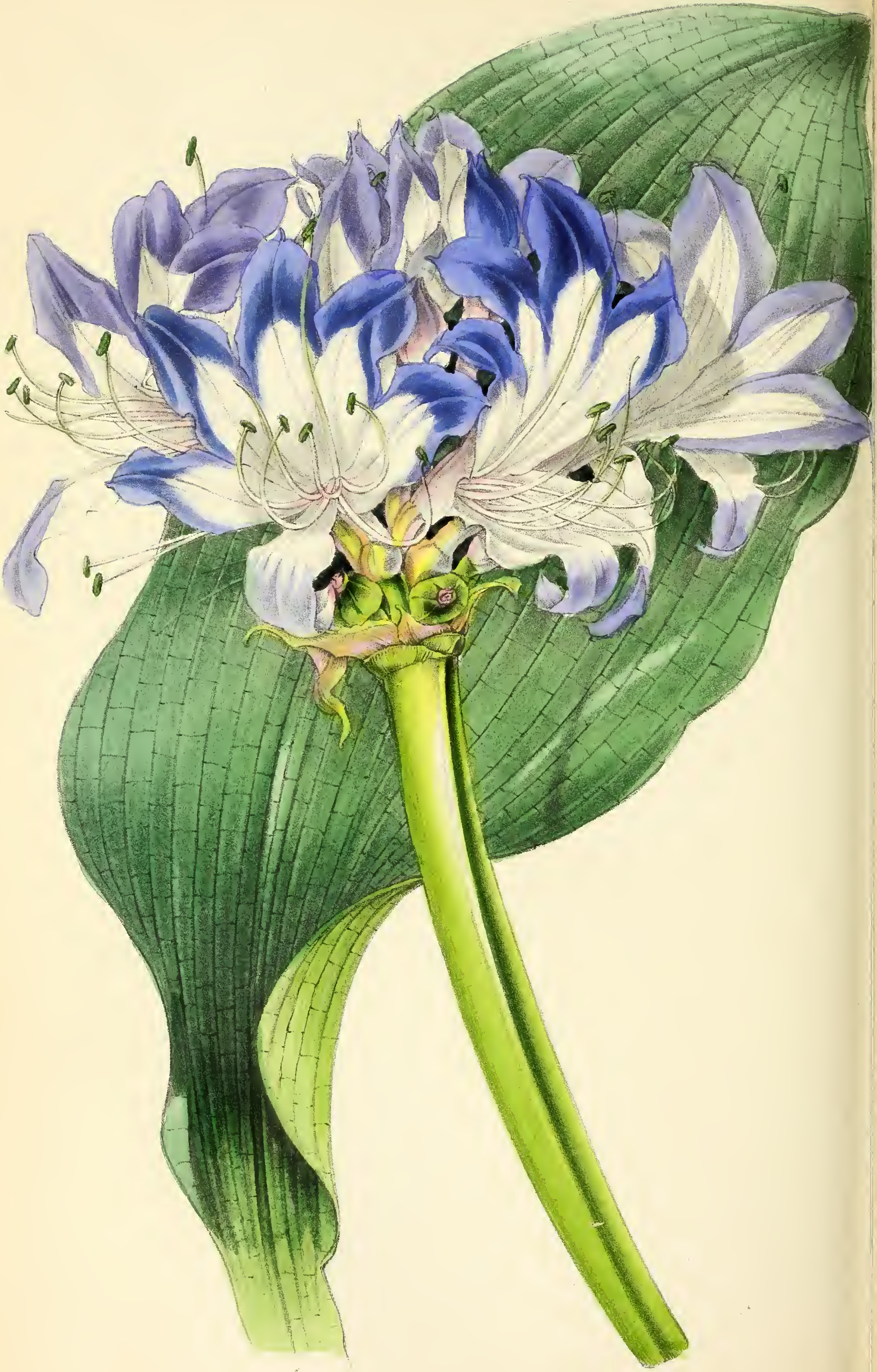
It has been long known to botanists that several species of this elegant family till exist in various parts of South America, but chiefly in Peru, which have never et been imported to this country except as dried specimens. Some of them, if we nay judge from description and the figures given in the "Flora Peruviana et hilensis" of Ruiz and Pavon, are quite as desirable, in a floricultural light, as ny of those we possess. Amongst those which collectors ought to look for, we nay mention *F. apètala*, so named from the absence of a corolla, and *F. simplici-aùlis*, both of which are natives of the same locality as *F. serratifòlia.* There is lso another, perhaps still more beautiful, the *F. denticulàta*, found amongst rocks t Huassa-huassa and Cheuchin, in Peru, where the inhabitants entitle it the Mollo-Cantu" or "beautiful plant."

The present species is one which has only lately been wrested from its native voods. A specimen brought during the past season to the exhibitions of the ondon Horticultural and Royal Botanical Societies, by Messrs. Veitch and Son, f Exeter, was the first which has ever disclosed flowers in a European collection: nd such is the beautiful and distinct character of the species, that notwithstanding he vast profusion of charming varieties of *Fuchsia* already in circulation, it has erhaps elicited more admiration than any other novelty of the season.

It was originally described by Ruiz and Pavon, who discovered it in somewhat umid and umbrageous situations at Mũna in Peru, where it forms a shrub six or ight feet high, and flowers from June to September. Mr. William Lobb found it in his recent travels through that country, and transmitted specimens to hi employers, Messrs. Veitch and Son, of Exeter, to whose kindness we are indebte for the specimen depicted.

It is a magnificent-looking plant, with a stout erect stem and spreadin branches, amply clothed with whorls of large, oblong, rich green leaves, with satiny gloss on the upper surface and a tinge of red beneath. The flowers hav a very gay and elegant appearance, and although there is only one from each axil yet as they all droop and hang below the branches, and consist of a long rosy tub tipped with yellowish green, and petals of a rich vermilion hue, they are ver conspicuous and interesting.

It will require similar treatment to that bestowed upon *F. fulgens* an *F. corymbiflora*, and will doubtless be as readily increased from cuttings.



S. Holden del. & lith.

Griffinia hyacinthina.

GRIFFÍNIA HYACÍNTHINA.

(Hyacinth-blue flowering Griffinia.)

Class.
HEXANDRIA.

Order.
MONOGYNIA.

Natural Order
AMARYLLIDACEÆ.

Generic Character. — *Spathe* two-valved, shorter han the many-flowered umbel. *Corolla* funnel-shaped, odding; tube short; limb six-parted, unequal, bilaiately campanulate. *Filaments* inserted at the top of ie tube, alternately longer, one rising, the others eclinate. *Anthers* incumbent. *Germen* three-celled. *tigma* simple. *Capsule* pedunculate, membranous. *eeds* solitary, obovate, ventricose, shining, whitish chre-coloured.

Specific Character.—*Plant* a bulbous perennial. *Bulb* tunicate, ovate. *Leaves* two or three, recumbent, petiolate, ovate-oblong, abruptly pointed, latticed by veins crossing the vertical nerves; midrib prominent beneath. *Scape* cylindrical, longer than the leaves. *Umbel* nearly sessile, sub-capitate. *Flowers* with intervening bracts. *Corolla* ringent, funnel-shaped, unequal; tube several times shorter than the limb, bent forward, cylindrical; throat naked, sub-ventricose; segments lanceolate, more or less undulated, upper ones erect and conniving.

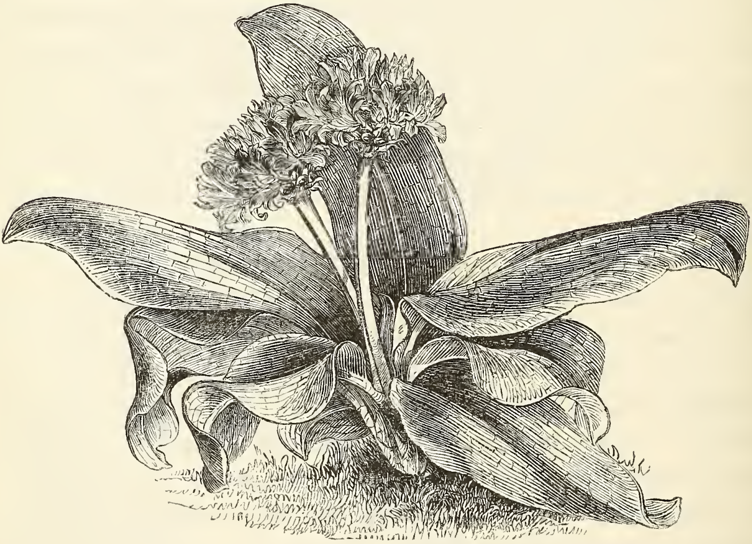
In the tribe of Amaryllids—those "lilies of the field," there are many fair lowers that deserve all the care of the culturist who aims at the production of a orgeous mass of bloom. The present is one of them, and one which, although it as been many years known in Britain, is far from being common. It is on this ccount, and because—unlike the majority of the species enrolled with it in this xtensive natural order—the prevailing hue of the flower is a beautiful ultramarine lue of the richest description, that we have been induced to give it a place in our agazine.

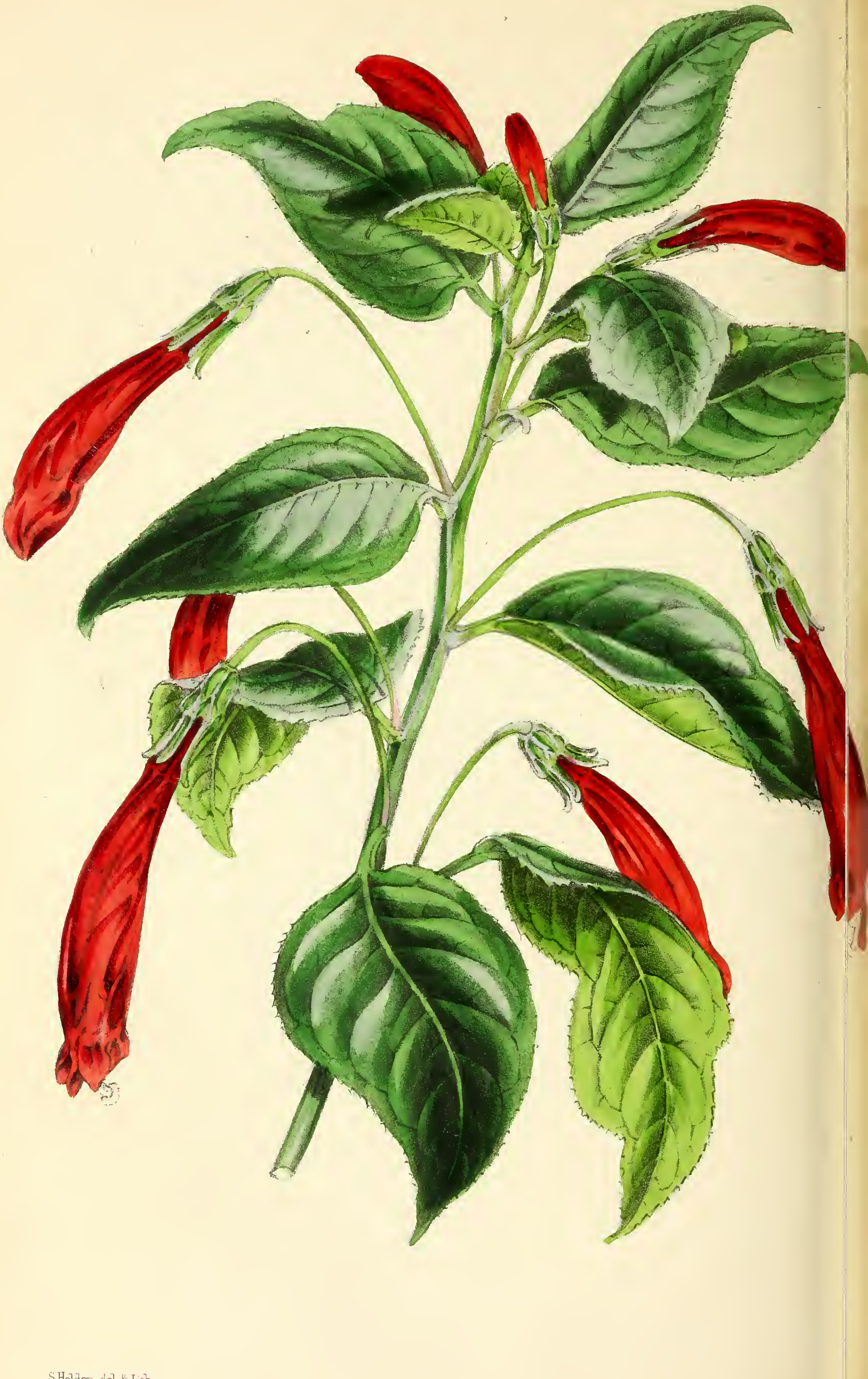
A figure was given some years since in the "Botanical Magazine," and the ccompanying letter-press states that it was discovered in Brazil by Mr. E. ordford, during his residence in that country, and imported to England about he year 1815, by Mr. Griffin, of South Lambeth.

The genus is closely related to *Amarýllis;* and, indeed, when this species was ntroduced, it was not considered to be sufficiently distinct from that family to varrant the establishment of a new genus. It was not till the addition of a econd plant (*G. parviflòra*) presenting the same anomaly to the primitive haracters of *Amaryllis*, that a separation was made under the title of *Griffínia.* ur subject is by far the most handsome and largest-flowering of the three species ow in the country; and there is a peculiar softness in the tint of the corolla—uch as Nature alone can lend, that contributes much to the interest it excites. here are several varieties of it, differing chiefly in the length and comparative breadth of the segmental divisions of the corolla. That represented in our figure, which flowered at the nursery of Mr. Jackson, of Kingston, last October, is the best we have seen; the limb is shorter and more compact than usual. An excellent variety, but inferior to the present, bloomed about the same time with Messrs. Rollisson, of Tooting.

Whilst the leaves are forming, the roots require to be well watered, and kept in a moderate bottom-heat. They may be shifted to a warm greenhouse when in flower, observing to place them where they will be secure from strong currents of air, and from having water dashed over the blossom, either of which would soon destroy their beauty. The leaves remain for a long time after the flowers have fallen; hence, a little moisture should be kept in the soil for some weeks, gradually however, bringing on a state of rest, when they may be set upon a shelf till another season.

The genus was named to commemorate Mr. Griffin, whose praiseworthy exertions in collecting had at that time secured to him the reputation of possessing the finest collection of the tribe in Europe. The specific title is a Latin term denoting a violet or a purple colour.





S Holden, del & Lith.

Siphocampylus coccineus.

SIPHOCÁMPYLUS COCCÍNEUS.

(Scarlet Siphon-flower.)

Class.
PENTANDRIA.

Order.
MONOGYNIA.

Natural Order.
LOBELIĂCEÆ.

GENERIC CHARACTER.—*Calyx* adnate to the ovarium ; nb five-parted, having the segments shorter than the be of the corolla. *Corolla* irregular, tubular ; tube tire, declinate, rather ventricose in the middle, and ther contracted at the base ; limb five-parted, bila-ıte ; upper lip of two straight or spreading segments ; e two lateral segments of the lower lip diverging, d the middle one more profound. *Stamens* and *thers* combined, the latter bearded. *Capsule* ovate, o-celled, two-valved, dehiscing at the apex.—*Don's* *ɪrd. and Botany.*

SPECIFIC CHARACTER.—*Plant* suffruticose, glabrous. *Stem* erect, branching, filled with pith. *Leaves* with a short petiole, ovate, acute, sometimes slightly lobed, doubly serrated. *Peduncles* axillary, solitary, single-flowered, longer than the leaves. *Flowers* nodding. *Ovary* oblong turbinate, furrowed. *Calyx* segments lanceolate, spreading, serrated, longer than the ovary. *Corolla* bright crimson-scarlet, curved ; tube constricted at the base below the insertion of the stamens, then gradually dilated upwards, and again contracted at the mouth ; limb scarcely two-lipped ; segments oblong, ovate, acute, nearly equal, incurved. *Stamens* and *style* included.

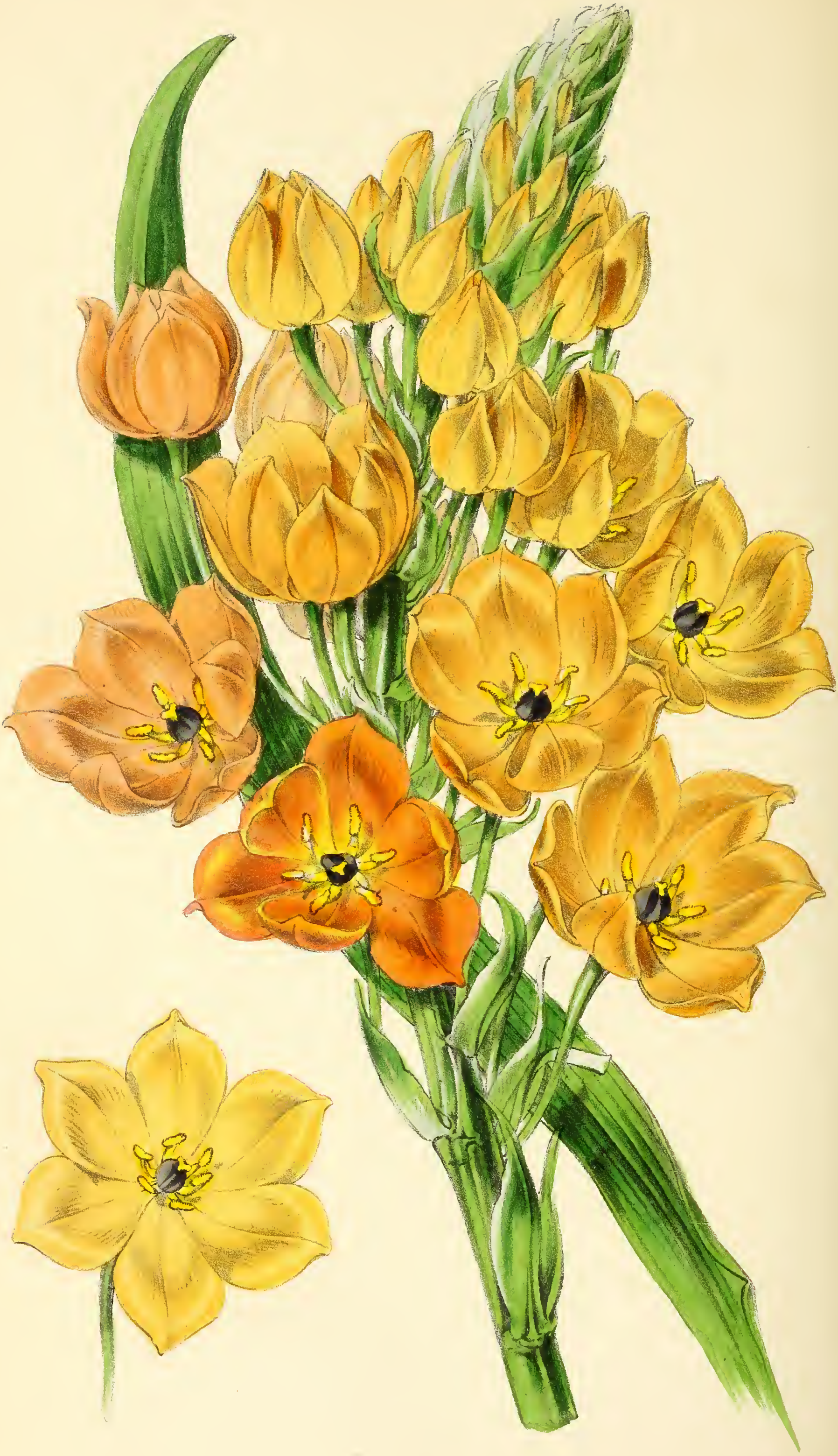
BOTANICAL works contain descriptions, some of which are accompanied with gures, of a great many species of *Siphocámpylus*, a large proportion of which are id to be the productions of Brazil or New Grenada. A few handsome species e already under cultivation ; none of them, however, are nearly equal to the esent in an ornamental light.

This beautiful species adds another to the many charming plants for the ssession of which cultivators are indebted to the noble enterprise of Messrs. eitch and Son, of Exeter. In the "Botanical Magazine" it is stated to have en "sent from the Organ Mountains, Brazil, by Mr. William Lobb ;" but the moranda since kindly supplied to us by Messrs. Veitch and Son, represent it having been discovered by that industrious and discriminating collector, in ady places on the banks of the River Chagres, in New Grenada.

It has been in flower since last May, and has obtained prizes as a new plant at e Chiswick and Regent's Park exhibitions. The habit of the species appears to considerably more dwarf and compact than that of any of its cultivated ngeners ; and the specimen exhibited in July at Chiswick was amply adorned th crimson-scarlet blossoms, which rise above the foliage and appear very nspicuously. They are upwards of two inches long, with the usual curved bular form, and somewhat swollen in the middle. The specimens exhibited at an rlier period were evidently not sufficiently grown to admit of a correct opinion being formed of the flowering capacity of the species. It has stems well furnished with broad ovate foliage; and though a much superior plant, it is evidently nearly allied to *S. duploserràtus.*

In the Exeter Nursery it has been grown in a warm greenhouse; and from the latitude in which it was detected, we suspect a little heat will always prove necessary in the early part of the growing season, for the production of fine specimens. It is not, however, improbable that it may flower well in an ordinary greenhouse or even in the open air, in the latter part of a favourable summer; and perhaps it may prove a suitable temporary plant for the lower part of a conservative wall, though we much doubt whether it will exist there through the winter.

It thrives well in a mixture of peat, loam, and sand, and requires to be kept moderately moist. Cuttings treated in the usual way for tender, soft-wooded plants, strike root with the greatest facility.



S. Holden del & Lith.

Ornithogalum aureum.

ORNITHÓGALUM AÙREUM.

(Golden Star of Bethlehem.)

Class.
HEXANDRIA.

Order.
MONOGYNIA.

Natural Order.
LILIACEÆ.

NERIC CHARACTER.—*Perianth* six-petalled; petals sp ding. *Stamens* six, hypogynous; *filaments* awl-sh d. *Ovary* three-celled; *ovules* numerous in each ce in two ranks, anatropal. *Style* three-cornered, er *Stigma* obtuse, three-angled. *Capsule* membr ceous, obtuse, three-angled, three-celled, dehisci t the apex. *Seeds* few in each cell, subglobose, or gular; testa dark, wrinkled.

SPECIFIC CHARACTER.—*Plant* a bulbous perennial. *Leaves* ovate-lanceolate, edged with white, somewhat fleshy, smooth, dark green. *Racemes* erect, densely flowered; the stalk 8—12 inches high. *Bracts* large, concave, pointed. *Flowers* large, golden-coloured. *Filaments* all dilated at the base, or rather sitting on a white glandular nectary, emarginate on the inside.

THROUGH the kindness of Mr. Brewster, gardener to Mrs. Wray, at Oakfield, ne Cheltenham, we are enabled to furnish a figure of this beautiful species, which, al ough more than half a century has now passed away since it first appeared ar ng the cultivated plants of this country, is yet by no means a common species. M t of the specimens now existing in collections, we believe, have been imported w in the last few years, along with other "Stars of Bethlehem," and a host of th Iridaceous species which throng the terraced lands of the Cape of Good Hope.

These plants constitute a prominent feature in the Flora of that district. During th dry season the foliage gradually matures and dies, and the bulbs sink to rest til he heavy rains again moisten the earth, and awake them to renewed activity. Th y grow rapidly, and immediately the rains have ceased, they are ready to unfold th lovely blossoms. Most of the Irids are fugitive flowers, but the Ornitho-ga ns are more lasting in their beauty.

The length and breadth of the foliage of *O. aureum* are somewhat variable; so so is the colour of the flowers, which runs through several grades of yellow. Th flowers, moreover, of some specimens expand widely, whilst in others they pa ke more of a cup-like form. As the interior portion of the flower is the most bri tly coloured, it is almost superfluous to add, that the former are by much the mc handsome.

Some of the racemes sent us were ultimately from twelve to eighteen inches lon The flowers are not all evolved at once; but the raceme continues to elo ate, and the blossoms to expand, during a period of several weeks. That fro which our drawing was made, with several others, was kept in water in a sitting-room for upwards of two months; and those flowers open at the end that time were as bright and beautiful as the first. Individually, they last ma days; consequently there is always about as many open at once as we have show in the figure. The specimens were received early in April.

It may be grown in a light sandy earth in the greenhouse, or in a warm bord beside a conservative wall. If the latter plan is adopted, the bulbs should taken up in autumn, and kept in a dry situation. It is increased by offsets.

Ornithogalum is a name adopted by Linnæus, and is derived from two Gre words, *ornis* a bird, and *gala* milk.

BUDDING.

We regret much that we overlooked this article in the last published Number, cause the first week of August, especially in weather so propitious as it then as, is most favourable to the operation. Our object is not to instruct the ientific gardener, or nurseryman, skilful in his art; but to correct false impres- ns, and to prevent amateurs, and those who are desirous to exercise their own genuity, from being misled by instructions given in print, which it is evident ere never derived from personal observation.

The *Budding of Roses*—now that fashion has laid claim to store so ample of w and beautiful varieties—is one of the most interesting experiments that the rden affords; but before we attempt to enter into practical minutiæ, it is sirable to inquire somewhat critically into the physiology of the process, in order at we may act upon established principles, and not be led by the dictum of any ok authority. It is always advisable to search for causes, to know upon what ound, and by what means, an operation may be expected to succeed; and why, commonly directed to be performed, it but too frequently fails.

A bud, in proper condition, is a single eye protruded above the angle of the tstalk (axil) of a leaf, attached to a healthy shoot of spring-formed, juicy, and newhat ripened wood. It is attached to the surrounding bark, which is firm, ut, and of good texture, but not hard or rigid. The natural position of such a d indicates the one to which it ought to be removed: it rests upon a portion of sh, sappy *alburnum*, to which it is attached by fibres of a similar texture. om this position it is to be separated by the knife; and therefore it is vain to pe that it can be transferred with success to any new stock, unless the quality l temperament of that stock be similar to those of the shrub from which it is t be severed.

The *first required condition* is the secretion of the proper juice, termed *Cam- m*, to such an extent as to insure the free rising or separation of the tender k from the new wood below it, and that equally in both stock and scion.

The *second* condition is this, that as the bud was seated on the juicy alburnum, ere it was attached by a system of vessels constituting what is termed "its t," and which includes pith and a conducting vascular, embryo tissue, so it st, when removed, be made to rest and repose upon a surface in absolute juxta- ition, so nearly allied to, and closely resembling that from which it was removed, to permit, first, its close adhesion, and, second, its actual union, by attractive ncy, producing an ultimate blending of parts, incapable of removal, except by ual force.

This condition, which is indispensable, shows us the error of those writers o insist upon the removal of every particle of wood from beneath the bark of

the "shield"—a term given to that portion of bark which surrounds the bud
Now, let any one detach a bud with a piece of the bark, as described in the following lines, taken from Loudon's "Encyclopædia of Gardening," 1826, No. 2057
and see what would be the almost inevitable result: it presumes that a shoo
containing the buds required is in the hand. "Holding the cutting, or scion, i
one hand, with the thickest end outward, and with the knife in the other hand
enter it about half an inch or more below a bud, cutting near half-way into th
wood of the shoot, continuing it with one clean slanting cut about one inch o
more above the bud, so as to take off part of the wood along with it, the whol
about an inch and a half long; then directly *with the thumb and finger*, or *point o*
the knife, slip off the woody part remaining to the bud; which done, observ
whether the eye or gem of the bud remains perfect; if not, and a little hol
appears in that part, it is improper, or, as gardeners express it, the bud has los
its root, and another must be prepared."

This "*root*" is that part of the woody matter which connected the bud wit
the alburnum of its native stock. Now, whether on tearing off the little strip o
wood cut away, a hole in the eye appear, or not, certain it is that one of th
essential, vital components of the bud has been removed in nine cases out of ten
and thus it has lost its fibro-ligneous, and central, *medullary* portions; and s
far at least is imperfect. It is, moreover, left hollow, with a cavity in the axis o
its centre, which precludes the possibility of bringing it in close contact with th
juicy alburnous surface of the stock. It is true, that in some few instances
fibre or two of ligneous matter may adhere so pertinaciously to the eye as to tea
away, and separate itself from the strip of wood cut off with the bark, whence w
find such buds succeed, while numbers perish, and never shoot, although th
shield of bark let into the stock may live for months, in consequence of havin
adhered, as true liber, to the alburnum, against which, by the compression of th
ligature, the contact has been rendered perfect.

It becomes plain then, that the eye must have perished in consequence of bein
hollow beneath, so as never to have touched the wood below it; and as that contact is indispensable, the system which implies the total removal of the wood mus
be delusive.

To insure success therefore,—the relative condition of the stock and scion bein
ascertained by the facility with which the bark rises from the green wood, and th
moisture of both surfaces,—a free and even portion of the stock to be budde
should be chosen, round which the ligature can pass without interruption. A twi
being ready, furnished with three or four plump, but not far advanced eyes, th
operator is to make the regular incisions with a very keen budding-knife, quit
home to the wood of the stock, and then raise the edges of the bark clearly, an
wide enough to insure the certain admission and passing of the strip of bark
to its full length, allowing, also, from one-sixth to one-third of an inch clear spac
of bark to remain between the bud and the cross cut on the stock, in order t

admit the passing of the ligature between and above both. This completed, detach a bud, not cutting, as directed, to the depth of half the wood, but by passing the knife from an inch or more below the eye to half an inch above it, just so deep as to insure the raising of so much of the wood, particularly under the eye, as shall cause that part to be at least level with, if not rather prominent, above the parts above and below it. Then—always bearing in mind the necessity of a complete contact of the part below the eye, and the wood of the stock—pare away the lower edges of the shield, removing any protruding wood at either extremities, and, indeed, everywhere else, excepting that portion of it which attaches to the eye, about its base. In budding roses, it is prudent to detach the whole of the leaf from its stalk, because the shield and bud being small, and little juicy, a transpiring urface, as is that of the leaf, may carry off moisture too rapidly; but with larger and more juicy subjects, like those of the pear, apple, and cherry, practical men eave one-third of the leaf.

The bud being ready, it is to be slipped tenderly into the stock, guiding, and asing its course by the finger, and the haft of the knife, so that it slide centrally under the lips of the long cut, and be equally lapped over and guarded by them. The shield is to be passed down till the eye itself be below the cross cut, and then, olding it at the stalk, the little projecting bit of bark at the upper part is to be ut quite level across, and made to rest accurately against the edge of the rind of he stock; the bark of the scion and that of the stock thus touching each other. As it is of great consequence that the bud with its bark pass glibly down the slit ind of the stock, many persons moisten its inner surface, by drawing it over their ongue, and as, in fact, the first principle of success is pressure, like that of the moistened leather of a boy's sucker, this application of saliva will be of some ervice.

As to the ligature, we know of nothing better, upon the whole, than a soft, but ery strong and pliable strip of wetted garden-mat. Such a strip, one quarter of n inch wide, being ready, and the bud duly inserted, the bark at the top of the it should be closely pressed against and over the bud, just where the two edges oin; and then, holding the tyer by its two ends,—the loop being under the stock nd exactly below the bud,—bring it up towards the edges of the slit, so as to grasp nd draw them towards each other, thus closing in the bud and binding it down. ross the strip, pull firmly right and left, carry the ends towards the back, lacing nd crossing it at every movement till it pass below the slit; then work upwards, nd tie in front. Three precautions are required: first, to see that the strip entirely vers the cross cut, and a little space above it; then, that the eye be not bound own, but have freedom to swell; and, lastly, that the pressure be firm and equal om top to bottom, sufficiently so to make every part of the shield touch the p-wood of the stock without wounding the tissues or forcing juice to ooze om them.

If a bud so prepared and inserted fail, there must be some error in judging of the appropriate condition of one or both of the members, or some want of adroitness in the manipulation. But it must be plain to every rational observer, that no success can result from any mode of operating which leaves a cavity under the eye; and as the binding ligature cannot be made to pass *over* that, so as to press it down, the part immediately below, in lieu of being hollow, ought rather to project, so as even to touch the alburnum without strong pressure, and this it never can do unless that point of the alburnum called the root, with a thin slice of fibre adhering, be permitted to remain undisturbed.

The *vital union* of parts first is induced by the steady pressure which brings two surfaces, moist with cambium, together, and expels air from between them. A blending of the fluids of each next follows, with a progressive development of inspissated matter, and of radiating medullary tissue. The bud swells, enlarges, and, in *roses*, frequently protrudes leaves before autumn: then the head of the stock should be cut back to within a joint or two, and the shoot, for security, should be lightly tied towards it.

Many fine plants are thus early obtained; but in other cases, perhaps, with greater safety, the buds remain silent till the spring.

We recommend our country readers to watch the operation as it is performed by some of those well-practised budders, who make it a business to go about the neighbouring gardens and bud at a very low price. It would be a lesson purchased on reasonable terms, and prove exceedingly instructive as a most valuable physiological study.

CONSERVATIVE WALLS.

Since the publication, in the present volume, of the paper on the plants which endured the last hard winter against the Conservative Wall at Chatsworth, some of our subscribers have again called our attention to the subject; and as this mode of protection is one of much utility in the cultivation of a large class of plants, both as regards success and economy, and constitutes, besides, a very attractive and interesting feature in a garden, we are readily induced to add to former observations, (vol. ix. p. 60,) a few instructions for their management.

The conditions which govern the prosperity of flowering plants are much the same as those required to produce fine crops of fruit, and to maintain fruit-trees in a healthly vigorous state; yet they seldom receive so much attention; and we not unfrequently find the same person, who is most studious to prepare a suitable border for his peach-trees, quite regardless of the same point for flowering plants, even though floriculture is professedly his principal aim, and good crops of fruit (nominally) a secondary consideration. Surely, this is but want of reflection! It is true that many of the finest flower-garden exotics, natives, too, of more genial climes than Britain, will grow like weeds in the summer season, seeming ven to thrive in spite of all deterring circumstances: but see them when the tumn frosts and the cold damps of winter follow—they are cut down, and erish. It is one thing to grow a tender plant in the open air in summer, and nother to preserve it alive and healthy through a dark cold winter.

In selecting a site for a conservative wall, considering the point entirely in a ltural light, (it has been before viewed as a matter of taste,) a low situation posed to fogs and damp should be rejected; for it is a well-ascertained fact, that ants so situated suffer injury and die in a winter that leaves the same species rfectly unharmed in a more elevated spot. And again, it is not advisable that alls built with this intent should be in anywise shaded by trees, or even have rge trees in their immediate vicinity, as, independent of other injury, the plants such places are more liable to be attacked by mildew.

The borders, moreover, should be as carefully constructed as for a forcing nery; well-chosen materials, and ample facility for getting rid of superfluous ater must be provided, and efficient steps taken to prevent the roots of one plant om piercing the soil and pilfering the nourishment intended for a less robust ighbour. The soil of course must be varied to suit the species planted; it will enough to say here, that all clayey earth of a tenacious quality, and light sandy ils that part too freely with their moisture, should be refused; the first is pecially hostile to the culturist, through the quantity of water which it holds eping the roots at a lower temperature, and rotting them; and also because it fers a repulsion to the delicate fibrils in their efforts to penetrate it: the latter is viously incapable of affording sufficient sustenance to the generality of plants in moderately dry summer. A great depth of soil is quite superfluous, and even jurious, as it draws the roots away from the surface; two feet will be found ite sufficient, and this should be laid dry, by placing a quantity of draining terials below it. The bottom, too, should have a gentle slope from the wall, d be flagged, or laid with some asphalte mixture, so that it may be quite pervious to the roots, and thereby restrain those organs from pushing too deep, d sucking up matter to be spent in producing a redundant luxuriance, and tinuing growth longer in the season than the sun has power to mature it. The eadth need not exceed three feet.

Further, as many of the plants usually placed against a conservative wall, will ry from each other very much in their relative strength, the border should vays be divided into compartments, so that the roots of one plant may never ringe on the supply of food designed for another. This is a point worth looking wherever promiscuous planting is intended; for, without such a curb, the onger invariably overpower the weaker. Slate is perhaps the most eligible stance for the purpose, as it occupies little space, and is easily concealed at the face.

Besides one plant to remain permanently, each of these divisions of the border y hold one or two dwarf plants of rapid growth, intended only to remain during the summer, to cover and adorn with flowers any vacancy in the lower portion c the wall. This proves a convenient spot for cultivating many beautiful tende plants, such as *Achimenes*, *Alstrœmeria*, *Tropæolum tricolorum*, and other slende free-flowering species, that can hardly be kept completely healthy in the ordinar flower-pot.

The planting should take place as early in the season as security from frost ca be depended upon. By this means there will be a longer summer to grow in and perfect growth; whilst, if deferred, it is more than probable that at the clos of the summer the new shoots will be too watery and tender to stand throug winter without much additional trouble and expense, as well as injury and loss.

A trellis in front of the wall, to tie the shoots to as they form, is an essentia appanage; and it is a matter of some moment to have the young wood regularl secured as it extends; for when left to be blown about by the wind, the sap i prevented from flowing so freely, and the progress of the shoots is retarded. I is chiefly required before the plants have covered the space allotted to them afterwards, they may be permitted to grow more loosely, to take off any appearance of stiffness and uniformity; only observing to prevent them from pushin out too far from the wall, and acquiring a negligent and untidy wildness. Mos shrubs of anything like a bushy character in their ordinary form, push out fa too much breast-wood when trained against a wall, and once established; hence it will be necessary to go over them occasionally in the summer time, and remov a few wherever they appear crowded and incapable of gaining a complete exposur to air and light. This is a feature which considerably affects the proper ripenin of the wood,—an all-important point in the management of tender plants in th open air. Much pruning, however, may be in some measure prevented, and witl benefit, by disbudding in spring, as gardeners commonly do with Peach-trees nevertheless, some degree of thinning will always be needful in autumn, to allov the sun to act more fully upon those shoots which remain. Some time in October or November if the season continue mild, the plants should receive their fina dressing preparatory to passing the winter. The shoots which were before allowe to grow unrestrained, must then be fastened as close to the trellis as possible, i order to give them a better prospect of existing uninjured till spring; and if thi be neatly performed, it will not detract much from their beauty.

Whatever be the mode of winter protection, whether by canvass, screens, o glass lights, there will be no occasion for it to be set up till frosty nights commence in autumn, and even then it will not be requisite, nor yet judicious, tc cover the plants, except on nights when frost is likely to occur. During the day and on mild nights, it is preferable to leave them exposed; and that not only a the commencement of winter, but throughout its duration. No favourable chance must ever be neglected for exposing them; neither should fires ever be kindled except when other means are insufficient to keep the temperature above freezing The reason for this is obvious: if plants during their cessation from growth are ept in a warmer temperature than just what is sufficient to preserve them from jury, they progressively become more and more susceptible of harm ; thus, if vered up too much from the ordinary atmosphere in the early part of winter, ey will be far more liable to be destroyed towards spring by a low temperature, an they would have been had a contrary course been pursued. We are the ore urgent in enforcing this point, because it is one of vital moment in the culture tender exotics on a conservative wall. Many plants which had existed through e depths of winter, have been lost on the approach of spring, owing to that ecocity of growth which too much protection fosters.

Winter management, then, is merely to consist in guarding the plants from ost, and at the same time endeavouring, by frequent well-timed exposure to the , to delay as long as possible the increasing tendency to renew growth. But e growing principle once re-excited, the capacity of the plant to endure cold is minished—the new parts being exceedingly tender, require more warmth to able them to go on extending with vigour. A frost which before would have t no traces of injurious action behind it, will now be fraught with danger. his is a rock on which many split, after having carried their charge through e most intense cold in perfect safety : as soon as mild weather appears, they at ce set about removing the means of protection, forgetting the delicate organs at it encourages to form, and the spring frosts, which are still to be apprehended d guarded against ; hence the shoots are destroyed, or starved into an imbecile eased growth, and much time is lost before the plant recovers a healthy ndition. It is no wonder that many plants fail to thrive and flower well under ch treatment ; for the shoots cannot reach maturity before they are overtaken another winter.

At Chatsworth the plants on the conservative wall are protected in winter th canvass curtains suspended from an iron rod placed beneath a moveable oden coping, and fastened at the bottom at short distances by means of rings d hooks. The hooks are fixed to a board about ten inches broad, which runs ng the bottom, and is attached by hinges to a frame-work firmly set in the ound : when the curtains are drawn back, the board lays partly over the border, th the hooks towards the earth, and makes a convenient path to stand upon ilst dressing the trees. The curtains are opened and closed by cords moving on lleys ; in the day-time they are neatly drawn up and secured to the projecting ttresses. There are two to each compartment ; hence, to cover the wall, these et in the middle ; and as one curtain is provided with eyelet-holes, and the her with rings to pass through them, they are readily fastened together by nning a cord through each of the rings from the top to the bottom of the wall. e whole, except the board into which the hooks are driven, can be entirely noved in summer. In severe weather a quantity of dried fern is thrown up ainst the bottom of the curtains, and the flued walls are warmed by gentle fires.

It must be remembered, however, that this is in a cold elevated district, where the atmosphere is rendered moist by the exhalations from an adjacent river, an other extensive bodies of water; and that the same plants which require all th attention here, may be managed with much less in more genial places. Henc other plants also, which would not exist through the winter upon a wall i Derbyshire, may stand and flourish in warmer localities.

Several plants, moreover, which are usually considered insufficiently hardy have been found to stand here, without other protection than that of a wall. I conclusion, therefore, we would suggest to those who have not convenience fo erecting a wall expressly for the conservation of exotics, to appropriate the wall of any naked building to the purpose. The walls of a dwelling-house will be sufficient shield for many beautiful things that are too delicate to endure the ope garden. Thus the cottager as well as the peer may have his conservative wal and cultivate a number of plants that would otherwise be placed without hi reach.

CULTURAL HINTS.

In resuming our remarks under this head we fasten on another circumstance which, like the last, appears to be ranked amongst the matters which are usuall denominated "trifles" by careless cultivators.

When speaking of the disadvantages accruing to plants through exposing th pots to the sun, we made a passing allusion to the injury inflicted on greenhous plants that have been plunged amongst ashes to protect them, by the roots passing through the aperture in the bottom of the pot, establishing themselves in the ashe or earth beneath, and thereby causing the necessity for a considerable disrooting at the period of removal to their winter quarters. As this evil exists to a degree productive of much debilitation and loss of beauty, we now return to the subject with the view of pointing out the best means of preventing its recurrence, or a least to diminish largely the chances of pernicious effects resulting.

The mode in which the potting of plants is executed, exercises an influence on the protrusion of roots through the bottom of the pot into the substance beneath It is clear that when a large quantity of roots are left near the bottom at the time of potting, their extrusion will be accelerated, especially as the lower roots are always the most vigorous; and in those plants that naturally make strong roots with few lateral ramifications, the evil will be still more obvious Deep planting and deep potting are indeed generally recognised amongst the evidences of an ignorant or thoughtless cultivator; but even those who acknowledge their impropriety frequently content themselves with merely raising the ball, or observing not to bury more of the stem than was covered at the previous potting or planting. Now this is but a very partial way of adhering to the maxim of shallow planting; for the intention of planting high is to keep the roots near the rface, but unless some care be taken to give a horizontal direction to them, as ell as not to sink the ball, this end will not be accomplished. At the spring tting, then, whilst the plant is still in a sub-dormant state, as many of the roots can be disentangled should be loosened and spread near the surface, pruning ck some of the most vigorous lower ones to cause the extrusion of fresh rootlets. the mass is permitted to retain the form in which it has been moulded in the rmer pot, the most vigorous will push at once to the bottom, and penetrate yond it, whilst the upper portion of the soil is thereby left devoid of roots, and nsequently in no wise contributes to the nourishment of the plant. Thus the inciple acquires a far greater degree of importance than could attach to it merely m the circumstance which has provoked its consideration; for it is intimately terwoven with one of the most essential conditions in pot culture.

It is true there are some seeming exceptions: the *Primula sinensis* and the rbaceous Calceolarias require to have the stem sunk deeper at each succeeding tting. These plants, however, gradually lose the lower part of the underground m, together with the roots which proceed from it, as the oldest leaves decay; ilst fresh roots are progressively emitted from the portion of the stem next ove, as new leaves are developed at the top. Hence there is a constant decay d extension going forward simultaneously; which would lead us to suppose (in case of the Primrose at least) that the decaying roots have their origin in se leaves which die about the same time. To promote the development of ves we must encourage new roots to protrude from the higher parts of the m by sinking it to the base of the remaining leaves, and cutting away the old rt and lifeless part at the bottom. This will keep the plant steady in its place, l constantly furnished with vigorous active roots near the surface as well as in bottom of the pot. A better supply of healthy roots near the top of the pot l also be produced in the Garden Balsam, by burying a portion of the stem enever it requires a larger pot. The effect, therefore, is the same with such nts as the contrary procedure is with the majority of shrubs.

Another means of preventing the roots from exceeding the limits allotted to t m, will be found in a properly prepared flooring for placing the pots upon. is is, in fact, the principal means of obviating the evil; for in spite of all the p cautions that can be taken in potting, it is evident that, when a multitude of r ts have been formed, and fill the pot, they will extend beyond it in search of o er aliment, in proportion to the suitableness of the material into which they p nge on emerging from it. If, as is frequently the case, a light earth, ashes, or a substance into which roots can easily penetrate and derive nourishment from, li immediately beneath the pot, a degree of luxuriant growth will be induced, t t to the unpractised culturist may appear to be symptomatic of health and good n nagement, but which in reality is an evidence of the converse, and a forerunner of d ease and unfruitfulness. The mischief, moreover, is more extensive in hard-w ded plants than in those of softer parts, although the latter appear to acquire a greater additional *present* vigour than the former. All, however, are injuriously affected, inasmuch as the season of growth is prolonged, and so much crude matter conveyed into the system, that it is impossible by any after management to get the wood sufficiently indurated and matured before winter. And there is another evil to contend with: to ripen wood properly there must be no sudden stoppage of the nourishment needful to continue and support growth, but only a gradual abatement; for mature wood cannot be obtained through violence. Here, however, those roots by the agency of which a redundant development has been produced and supported, must be removed before any check can be placed on further extension; and as the roots within the pot will be inadequate to meet the suddenly increased demand upon them, defoliation will succeed at the very time when the leaves are most needful to the ripening of the shoots; and in no very limited number of hard-wooded species it is either the cause of death, or of a mutilation by the succeeding loss of large branches, which is almost equivalent to death, since it renders the plant of no value as a *specimen.*

If the legitimate object of exposing greenhouse plants in summer be adhered to, then the necessity of providing a proper floor to place them upon is most markedly evident. By the legitimate object of exposure we mean, turning out those plants which have formed their growth in the greenhouse about the latter end of July, to assist in ripening their wood. It is obvious that this design would be entirely frustrated by setting the pots upon any floor that would tempt the roots to push into its substance, as a second growth would be encouraged. Nor is the precaution less needful for hardy plants in pots, and especially for those plants which are intended for forcing. If they are to be exposed to the frosts of winter, the sooner and more completely the wood is ripened the less injury will they be likely to sustain; and if they are wanted for forcing, they will be better prepared for making an early growth.

The preparation of a suitable floor, then, is as much a matter of necessity for pot-plants in the open air, as it is for those kept in houses. The place devoted to them should display perfect neatness, and some pretensions to arrangement. A good floor may be formed of asphalte or some concrete, slate or tiles. There should be a slight inclination between the rows or beds of plants, to enable water to pass away readily. A very little slope is sufficient for this purpose; and more than enough would throw the pots too much off the level to admit of effectua waterings.

We have seen very neatly arranged reserve gardens for exposing greenhouse plants in summer at several places, divided into compartments with wood, slate and in some cases brick sides, the depth being proportioned to the size of the pot they are intended for, and the floor formed of some of the materials just recommended. None of these compartments should be broader than a man can conveniently reach to the middle from each side; and paths of sufficient breadth mus be left between them, to admit of watering and other work, without endangering e plants. Where there are more compartments than are occupied with the pot- ants, if a layer of clean cinders is placed in the bottom for drainage, and the mainder filled up with a good soil, they will form excellent places for encouraging oice plants for propagational purposes. In spring they will be useful for rdening off the plants required for the flower-beds, and may be provided with ht moveable frame-work and coverings for the purpose.

In the choice of a situation, a free play of air and full exposure to the sun ould be secured. It is necessary also to have protection on all points from hich strong or cutting winds are prevalent. The foot of an eminence and the ighbourhood of a stream or large surface of water, should be as much avoided as cumstances will admit, as plants in such places are more liable to be injured by ildew and frost. If they are screened from the violence of the storm, they will ver be injured by exposure to a slight agitation of the atmosphere.

These remarks may appear unseasonable at first sight, as it is now too late for eir application during the present season. Nevertheless, we have judged it better lay them before our readers now, whilst the evils we speak of are most apparent, d whilst there is yet time to make an effectual provision for avoiding their urrence another year.

CURSORY REMARKS.

Botanic Gardens.—Interesting accounts have lately been published in the Appendix to the Botanical Magazine," of the Royal Botanic Garden of Kew, and the Imperial Botanic Garden St. Petersburgh ; and a " notice respecting the present state of Botany and Botanic Gardens Portugal," has been commenced. It is also proposed to furnish similar notices of other tanico-Horticultural establishments.

In furtherance of this proposal, Sir William Hooker writes, in the last Number of the work t mentioned :—" We should be glad to receive communications of this kind from the gentle- n under whose care they may be at present. We can hardly expect that accounts consuming ch time and labour should be furnished, and our purpose would in fact be best served by bling us to publish, in a short form, brief sketches of the principal botanic gardens in and out Europe: a kind of synopsis of the history of botanical Horticulture. The details we should to have furnished might, perhaps, be—1. Date of first establishment. 2. Extent of ground. Number and kind of houses. 4. Annual expenditure, and source from whence derived. Names of eminent men connected at any time with the establishment. 6. Remarkable plants t cultivated, introduced, named, or now particularly conspicuous—and any other notice of king importance. Such information, we hope, will be readily furnished, and we would have asure in publishing it.

"It is satisfactory to state, that gentlemen connected with embassies and consulates are rywhere willing to forward papers concerning such matters, free of expense, which, as in days yore, so even now, fair science can ill afford to defray."

As, from Sir William Hooker's position in the botanical world, there is little doubt that this uest will be ably responded to, when it becomes known, we may hope to see a vast accumu- on of matter connected with these establishments, which will be mutually advantageous to all parties concerned, severally, in conducting them, and also prove highly interesting to the eral botanical reader, in exhibiting the relative state of the science in different parts of rope, and other quarters of the globe.

FLORICULTURAL NOTICES.

NEW OR BEAUTIFUL PLANTS FIGURED IN THE LEADING BOTANICAL PERIODICALS FOR AUGUST.

Achime'nes argyrosti'gma. Sent from the Sierra Nivada de Sta. Marta in New Grenada, amongst other novelties, by one of the collectors for Kew Gardens. Like *A. pícta* it is remarkable for its peculiar and highly-interesting leaves, which are large, of an obtuse elliptic form, with saw edges, the upper surface of a rich deep velvety-green colour, marked with scattered white spots, like *Begònia argyrostígma,* and the under surface tinged with purple. Great expectations were entertained regarding the beauty of the blossoms, partly through the consciousness that it belonged to a genus comprising so many magnificent flowers. Hence, it occasioned considerable disappointment when they appeared small, scattered, and nearly white; "but as the racemes increased in length and more blossoms expanded, the plant became a general favourite, and is likely to continue so, for the flowers bid fair to continue the whole summer months." The racemes are somewhat slender and elegant, rising in considerable numbers from the axils of the upper leaves, which they far exceed in length, being frequently as much as a foot long, and covered with flowers down almost to the very base. The corolla has a rather short hairy tube, and an oblique two-lipped limb : the upper lip with two lobes beautifully mottled with red, and the lower one divided into three parts, rounded, fimbriated, and white, with a spot of yellow in the throat. At Kew, it has received similar treatment to the rest of the family; encouraged at first in a moist and hot stove, and afterwards removed to a cooler place, in order to prolong the beauty of its foliage and blossoms. Doubtless it will be easily multiplied, like other species, by its scaly caterpillar-like tubers. *Bot. Mag.* 4175.

Bolbophy'llum umbella'tum. Mentioned with doubt in our notices of last month (p. 165), to which the reader is referred. Dr. Lindley says it was first found in Nepal in 1821, by Dr. Wallich's collectors. "The column has two long horns, which have had a single tooth on the upper side in all the specimens examined. The pollen-masses are, as is customary in the genus, of very unequal size, the front pair almost concealing that behind; and in this case are held together by some soft mucus, which resembles the gland of the *Vandeous Orchids,* but is destitute of its firmness and permanency." It will thrive potted in turfy heath-mould, and suspended to the rafters. *Bot. Reg.* 44.

Callipsy'che eucrosioi'des. A curious bulb, described by the Dean of Manchester as a plant producing but few leaves, of a green colour, with a blade a foot long and about four inches wide, and a good deal tessellated and pitted. The flower-scape is of a glaucous hue, about twenty-eight inches long, tapering upwards, and carrying about ten radiating flowers, with a green tube curved downwards, and a somewhat scarlet limb with obtuse petals; the whole, including the ovary, about one inch and a half long. The most remarkable feature of the flower is the curved filaments, which are nearly four and a half inches in length. Dr. Lindley observes that the same authority also states that "it is a plant with a roundish bulb, which was brought from St. Blas or S. Felipe, on the west coast of Mexico, and that a similar plant from Guatemala is in his collection. It seems to like shade and heat, and flowered without leaves in the month of March." "The genus is regarded as an ally of *Eucrosia,* because of the tubercles in its orifice." The English title given to it by Dr. Lindley is the "two-coloured Fairy-bloom." It belongs to the *Amaryllids. Bot. Reg.* 45.

Echinoca'ctus myriosti'gma. "One of the most singular of the singular family of Cactaceæ, and still considered a rarity in collections; first described by Lemaire in 1839, but from very imperfect specimens, of which even the native country was not known, but which presented such remarkable characters, independent of flower and fruit, that he ventured to constitute of it a genus, under the appropriate name of *Astrophytum.* The flowers, however," continues Sir William Hooker, "(for we are still ignorant of the fruit) seem to present no characteristic marks to distinguish it from *Echinocáctus*, and I venture to follow the Prince de Salm-Dyck, in considering it to form a section of that extensive genus, which he has called Asteroidei. The transverse section not inaptly resembles a star-fish. We owe the possession of our specimens in

Royal Gardens to F. Staines, Esq., of San Luis Potosi, Mexico, who sent us, in the first tance, specimens a foot long; but coming in contact, as it would appear, with a 'monster species' losed in the same case, they were bruised and eventually perished. Others were afterwards warded of a smaller size, and one of them here figured threw out its pretty starry straw- oured flowers from the depression at the top of the plant in July, 1845." The plant is at first ewhat round, but afterwards becomes oblong, the sides consisting of five or six deep furrows l as many projecting angles; the whole surface covered with white scale-like dots; the keel of angles is flattened, as if cut off with a knife, and this is occupied with closely placed areolæ, bearing no spines. *Bot. Mag.* 4177.

PORPHYROCO'MA LANCEOLA'TA. A remarkable and very beautiful Acanth, sent to the Kew dens by Mr. Forkel, gardener to his Majesty the King of the Belgians, at Brussels; "but ortunately without any history, so as to leave us in the dark as to its native country, or the hor of its very appropriate name (*poryhýra* purple, and *kòme* head of hair), given in allusion he singularly richly-coloured spikes of deep purple, from the scales of which the scarcely less ghtly-coloured (but more inclining to blue) flowers appear. It was exhibited in the Horticultural iety's Rooms, and excited admiration from the beauty of the blossoms; which consists in the k purple comb-like parts half covering the Lamium-like violet flowers. It is a stove plant, continues flowering during the spring and summer months." The specimen mentioned is ut a foot high, with large drooping lanceolate leaves tapering at both ends, and of a dark-green ur. The flower-spikes are terminal, and deeply four-angled; the corolla protrudes siderably beyond the bracts. *Bot. Mag.* 4176.

SELA'GO DI'STANS. Dr. Lindley believes that a plant in the nursery of Mr. Glendinning, of nham Green, is identical with the *S. dístans* of E. Meyer; but adds, that "in the absence of hentic specimens, it is difficult to acquire a certainty upon the point in a genus like *Selàgo*, of ch scarcely any species have been figured. Walpers enumerates sixty-eight of them, and y are very much like each other. The great peculiarity of this is its loose spikes of flowers, small slender downy leaves, which are solitary on the young branches and fascicled on the ones." The flowers are rather sweet-scented, but the foliage has an unpleasant odour. It greenhouse plant easily cultivated, thriving well in a sandy peat, if freely supplied with water he roots, and syringed over-head night and morning, during hot weather. "It is a desirable cies in consequence of its early and long continuance in flower. To enable it to exercise this able quality, it is necessary to repot it about the beginning of August, so as to have it well blished before winter; for if repotted in spring, its flowering will be either retarded or vented." It is increased from cuttings. *Bot. Reg.* 46.

TASMA'NNIA AROMA'TICA. This plant was first made known in De Candolle's "System," where as described from specimens gathered on the mountains of Van Diemens Land, by Brown, in the country round D'Entrecasteaux' channel by Leschenault, a French traveller. But at time nothing was known of the flowers, except that they were diœcious. The characters e recently furnished by Endlicher do not exactly coincide with this species, but possibly ng to *T. dipétala*. This species "is a handsome evergreen bush, with dull purple branches, light green leaves, distinctly marked with transparent dots; they are of a dead green, and less on the under side. Mr. Gunn informs us that it is very abundant in Van Diemens Land. ween Burghley (at the Surrey Hills) and May Day Plain, the Van Diemens Land Company's k, commonly called road, to Launceston, is cut through a thicket of it for upwards of a mile; hat place its usual height is from nine to twelve feet. It always grows in the richest humid ; in the neighbourhood of Launceston usually on the margins of rivers or small streams in rageous ravines. Every part of the plant is highly aromatic and pungent to the taste. The t is occasionally used as pepper." It is an evergreen shrub, merely requiring to be sheltered greenhouse from frost. The flowers are produced in April. Cuttings root freely in sand, if ered with a bell-glass and placed in bottom-heat. It was presented to the Horticultural iety of London, by Mr. Low, of Clapton. *Bot. Reg.* 43. [It would doubtless flourish, in t places, against a conservative wall.]

NEW OR INTERESTING PLANTS RECENTLY FLOWERED IN THE PRINCIPAL METROPOLITAN NURSERIES AND GARDENS.

Tetraneˋma mexicaˋna. There can hardly be a more profuse blooming plant than the present it is in fact almost perpetually in flower. During the winter and spring months, if kept in stove, it makes a very engaging object; and ought to be in the possession of every one who ha the conveniency for it. From its dwarf habit it requires little room, and may be managed like *Gloxinia*, except that it scarcely needs a season of repose. It possesses a close affinity with th Pentstemons; and the flowers, though smaller, are not unlike those of P. *argùta*, either in for or colour.

Russeˋlia floribu'nda. A shrubby plant with ovate crenate leaves, and producing axillar pendent Pentstemon-like flowers near the end of the shoots. Each flower is about an inch an a half long, and of a fine purple colour. It has flowered at the Exotic Nursery, Chelsea, and a some of the provincial establishments. It is said to be nearly hardy. By some nurseryman' blunder this plant has acquired the name of Vassalia.

Achimeˋnes argyrosti'gma. We have given a notice of this novelty in a previous page, fro the "Botanical Magazine," and only wish to suggest here, that although certainly far inferior t any other member of the family it belongs to, yet nevertheless, it is not improbable that it migh become the parent of some highly interesting varieties, by fertilising its seeds with the pollen o some more showy species. We hope some of those who possess the plant will make th attempt. If the habit with the foliage of this, and the flowers even of the small *A. coccinea* could be combined, it would be a valuable achievement. A specimen far past its prime wa exhibited at the Horticultural Society's Rooms in Regent Street, from the Kew Gardens, wher we noticed plants of it a short time before, in a more perfect and much prettier state. Whe well-cultivated in large patches in pans, it will at least be interesting for its handsome silver dotted foliage.

Æchmeˋa fu'lgens. A specimen of this handsome Bromeliaceous plant is flowering a Messrs. Rollisson's Nursery, Tooting. The substance, form, and arrangement of the foliage gives the plant something of the aspect of a miniature pine-apple. But the florescence i the most remarkable. The flowers appear on a stem which issues from the centre of the tuft o leaves, and are arranged in a spicate form, the whole appearing of a brilliant coral red wit violet points. It is a magnificent, and by no means a common plant yet, although it has been i the country between two and three years.

Barleˋria ——— ? A pretty upright-growing Acanth with erect branches slightly swollen a the nodes, clothed with oblong leaves on long footstalks, and with terminal spikes of handsom violet-blue flowers of considerable size, and mostly turning in the same direction. It is an Eas Indian plant obtained by Messrs. Henderson of Pine-apple Place, who exhibited a specimen a the Regent Street meeting in the beginning of August. It seems likely to flower in successio for a considerable time.

Besleˋria pulche'lla. A prettily-marked, but not very showy flower. It is a Gesneriaceou plant, with strong thick stems, and large ovate foliage much wrinkled on the surface, and of lively green. We have noticed it in flower for some months at the Pine-apple Place Nursery The flowers are rather small for the plant, and only developed a few at a time: their colour i an orange-yellow, streaked with red.

Bu'ddlea Lindleyaˋna. The plant lately issued from the Garden of the Horticultural Societ under this name, has recently flowered in the large conservatory there, and proves a very prett thing, though the blossoms are not large. It is one of the products of Mr. Fortune's Botanica Mission to China. Grown in pots it has a rather loose habit, but it loses much of this whe planted out of doors in a border. The flowers are arranged in secund racemes from four to si inches long, and perhaps longer. The corolla consists of a long curved tube, with a rich viole four-cleft spreading border. Specimens left in a border through the last winter, were kille down to the root; but have made strong shoots since the spring.

Daˋis cotinifoˋlia. One of those old plants now almost confined to Botanic or old establishe Gardens, but which well deserves to rank amongst showy greenhouse productions. It is a shrub from the Cape of Good Hope, with much of the general aspect of a *Pimelea*. A specime at Kew was lately covered with its fine showy heads of rich pink flowers.

Leia'nthus longifo'lius. This is a plant of a rather loose but elegant habit, and seems to f ver freely. The blossoms hang down from the lateral shoots like those of the axillary flowered I chsias, and are yellow, with a slight tinge of green. It is very like the *L. nigrescens* in habit, a makes a good contrast with it in the colour of the flowers.

Phlo'x Drummondii, *varieties.* The varieties of this beautiful half-hardy annual are a ongst the gayest ornaments of the pleasure-ground in the summer season. From their rapid s eading growth they are well suited for adorning the raised mounds upon which Coniferæ and o er trees are planted in the arboretum, or for the small circles round standard shrubs on a l n. Mr. Cole, of Blackheath Park, exhibited some handsome varieties at the meeting in I gent Street; amongst them was a streaked or mottled one, which if constantly so, well deserves n ce, and a variety with flowers almost white, with a rose-coloured eye in the centre, in which r pect it is superior to the white one noticed last month at Mr. Grooms'. Mr. Grooms' flower, h ever, is a more decided white, produces itself from seed with certainty, and has broader f ge. At Messrs. Knight and Perry's Nursery there is a profuse variety of these flowers r ed from American seeds.

OPERATIONS FOR SEPTEMBER.

Although the garden has yet scarcely reached the zenith of its autumnal beauty, the season i st approaching, especially in the northern and colder districts, when its chief ornaments will b lestroyed by frost. Even this month, in some localities, is not exempt from the liability; h ce, not only must every exertion be put forth to keep the utmost neatness whilst the flowers l , but active preparations must be made for securing an abundant supply of plants for a s eeding season. All those numerous species of tender plants with which our borders are now p cipally adorned must be propagated without delay, for the earlier cuttings are procured and r ed, the more likely they will be to stand the winter well. In places where the number r iired is very extensive, a decaying hotbed with about two or three inches of sand or fine s ly earth laid on the top, and covered with a frame and glass lights, will perhaps be better t n pots, and will certainly prove a great saving both of time and room. Some of the metro-p tan cultivators manage to keep their whole stock of Calceolarias, Verbenas, Petunias, &c., i his way through the winter without potting; but there is less risk of losing them when they a planted by threes, in pots of a suitable size, to allow the roots to fill them before November. I order to produce a sufficiency of roots it is of course necessary to keep the young stock in a rowing state for some time after they are potted out; and it is important that this growth s ıld cease or nearly so, and the shoots be somewhat hardened whilst the sun has power to d it, so that they may require less protection from cold, and less attendance in the winter n ıths. The formation of many roots is more to be desired and promoted now, so far as art c do so, than the production of an increased stem and foliage. To this end, therefore, the y ng plants should be potted in a poor soil, such as peat and sand, which will cause them to p rude a great number of fibrils, without causing much development of stem. A rich soil, o he contrary, produces great luxuriance in the leaves and shoots, without the emanation o corresponding multiplicity of rootlets—a state the very opposite of that we ought to s re for.

Scarlet Pelargoniums and other things of a like *succulent* nature that are employed in large q ntity for the flower-garden, on account of their liability to rot, should never be left in frames o its through the winter, unless there is some heating apparatus which, in conjunction with a j cious ventilation, is capable of preserving a dry atmosphere. Consequently, it will be a isable to plant cuttings of these plants at once in pots or in large flat pans, so that they may r ıire no re-potting, and be easily removed when rooted to some dry shelf in a greenhouse. I here is no other convenience for their conservation than common frames, the pots should be s on raised stages, instead of being plunged in ashes: the frames, moreover, should be stationed i ome dry, airy spot.

In taking cuttings, too much care cannot be bestowed on keeping the different coloured varieties of any of the favourite border-flowers by themselves, and fixing the name or equivalen mark to each lot. For when the varieties of such plants as Verbenas for instance, get mixe together, it is impossible to make anything of planting a garden in spring. Two or three stron plants here and there in a bed otherwise planted with one colour, betrays much negligence, an when often repeated, diminishes the effect of a parterre. All the labels should be examined, a it is the best time now, whilst the flowers are present, to correct any misnomers that may hav occurred.

It will also be well to sow a few seeds of some choice annuals now, to flower early next sprin in the greenhouse, or to be then turned out into some warm sheltered border. Towards the en of the month some of the hardier kinds may be sown in the open air ; they will soon appea above ground, and if the winter is not very severe, they will exist through it, and flower earl They rarely succeed in wet, retentive soils. On rockwork, or any well-drained piece of groun in an airy situation, they will generally do well.

Means should be got in readiness for protecting any favourite flower, and the plots near th mansion, from the sudden slight frosts which sometimes occur at this season, and merely last fo a night or two. Protection for a single night will sometimes prolong the beauty of the garde for a month or six weeks. There is a greater probability of preserving from frost in this wa when the garden is upon a rising ground, than in one upon a level low site—the early frost always being less frequent and less injurious on the former. Oiled calico or canvass, stretche upon slight framework, will be as convenient and economical as anything.

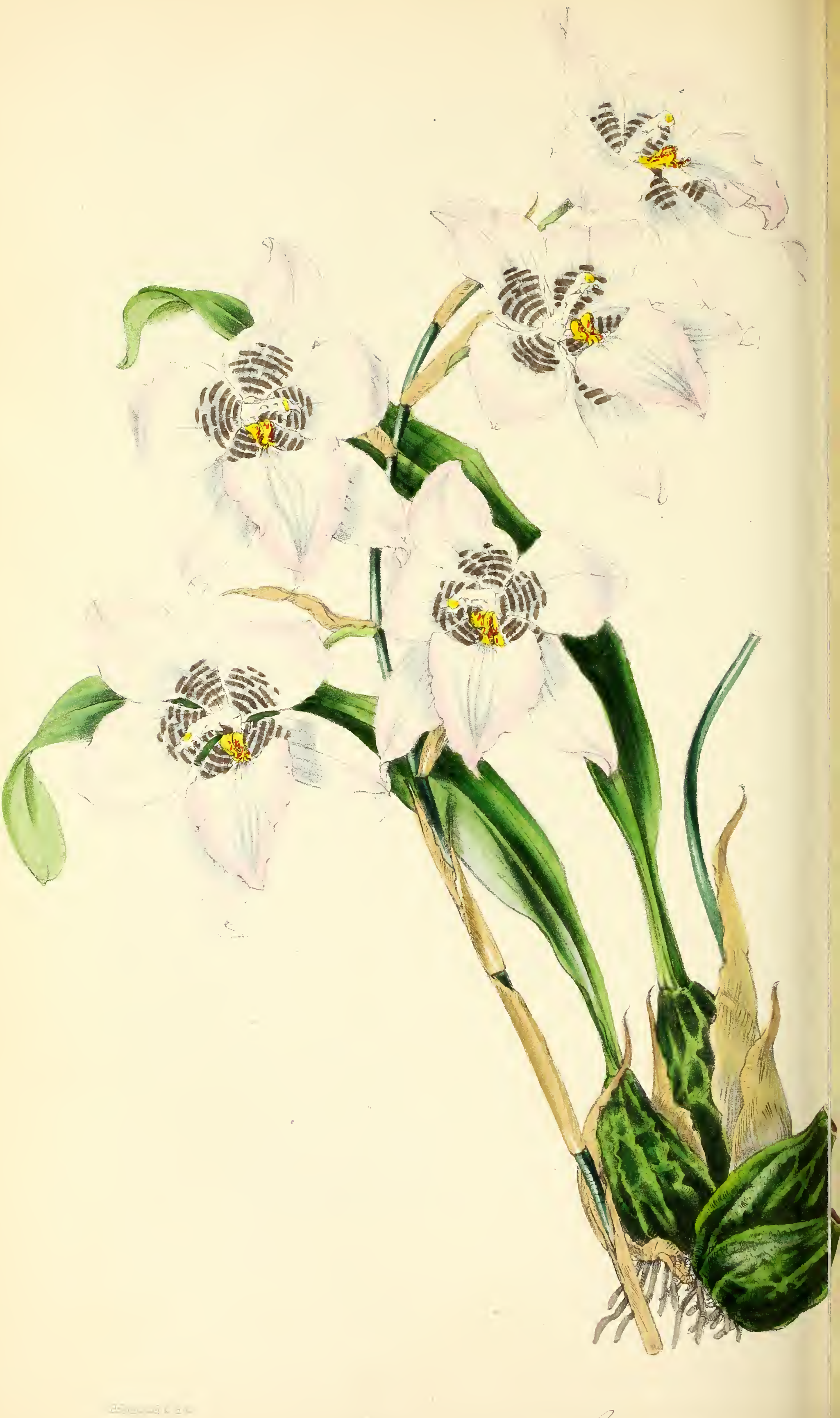
Plants which have been turned out into the reserve-beds for the summer season, to haste growth and form good specimens, should be taken up some time in the course of this month an potted: also any from the flower-garden which may be considered worth preserving. The should be shifted with as little injury to the roots as possible, instead of shearing off the points, a some do. It is not necessary, however, to retain all the earth about them ; on the contrary, it i better to shake it away from the extreme roots, so that the plants can be placed in pots of a siz proportioned to the extent of the branches, and have an inch and a half or two inches of goo fresh earth all round for the roots to strike into. When potted, they should be placed in a clos shaded frame, and gently damped over the foliage every morning with a fine syringe, till th roots have taken fresh hold, and are capable of obtaining fluid enough to make good the increase transpiration from the leaves, which the removal of the shade and more exposure to fresh ai would occasion. With this treatment they will experience little harm by the transplantation To harden their growth they should then be kept cool and exposed to all the air and light tha can be commanded. Syringing, however, must be continued, to prevent the foliage from drooping

When the first frost has struck the Scarlet Pelargoniums and spoiled their beauty, the should be taken up, all the shoots cut away to within an inch of the base, and the roots reduce till they will go into a five-inch pot. If they are then placed in a late vinery where th atmosphere is kept partially dry, they will soon begin to push out new shoots, and will mak better plants in spring than those reared from cuttings.

Much injury to specimen plants results from gardeners at this season crowding too man plants into the houses, and thereby preventing a perfect circulation of air amongst their branche and foliage. Every specimen should stand clear of its neighbours. The creepers on the roo should be trimmed now, to admit as much light as possible to the plants below them.

The greenhouse, stove, and orchidaceous house, should be well ventilated, and freed from al shade. The plants may still be syringed in a morning, taking care not to wet the flowers Decaying leaves will now be becoming plentiful, and should be daily removed, together with al flowers that are past their beauty.

The tops of Chrysanthemums may still be taken off in the early part of the month to obtai dwarf plants to flower late. They should be taken from the plants growing in the open garden planted singly in pots of light earth, and placed in a gentle bottom-heat. Large plants may b taken up from the borders, and treated as recommended for greenhouse specimen plants till the recover. Bulbs of the Japan and other lilies should be potted now, to flower at midsummer Cape bulbs may be planted in pots, and set in a cool frame till they have formed roots. Insect must be kept down ; and all alterations in the houses completed at once, and made ready for th reception of the specimens in the reserve-ground.



Odontoglossum Cervantesii

ODONTOGLÓSSUM CERVANTÈSII.

(Cervantes' Tooth-tongue.)

Class.
GYNANDRIA.

Order.
MONANDRIA.

Natural Order.
ORCHIDÀCEÆ.

ENERIC CHARACTER.—*Perianth* showy, equal; sepals petals narrow, acuminate, free. *Labellum* undi- d, destitute of a spur, furnished with a short claw, ch is continuous with the base of the column, ing a crested spreading plate at the base. *Column* t, membranous at the margin, winged on each side e apex. *Anthers* two-celled. *Pollen-masses* two, l, with a linear *caudicule*, and a crooked *gland*.

ECIFIC CHARACTER. — *Plant* epiphytal. *Pseudo-bulbs* ovate, angular. *Leaves* solitary, oblong, with a narrow channelled petiole. *Scape* few flowered. *Bracts* sheathing, membranous, very acute, equitant, elongated. *Sepals* membranous, oblong-lanceolate, acute. *Petals* broader, subunguiculate, acute. *Lip* subcordately ovate, acute, unguiculate; *unguis* fleshy, cyathiform, pubescent, bidentate in front, tubercled, and with two pilose processes before the cup. *Column* pubescent, with rounded ears.

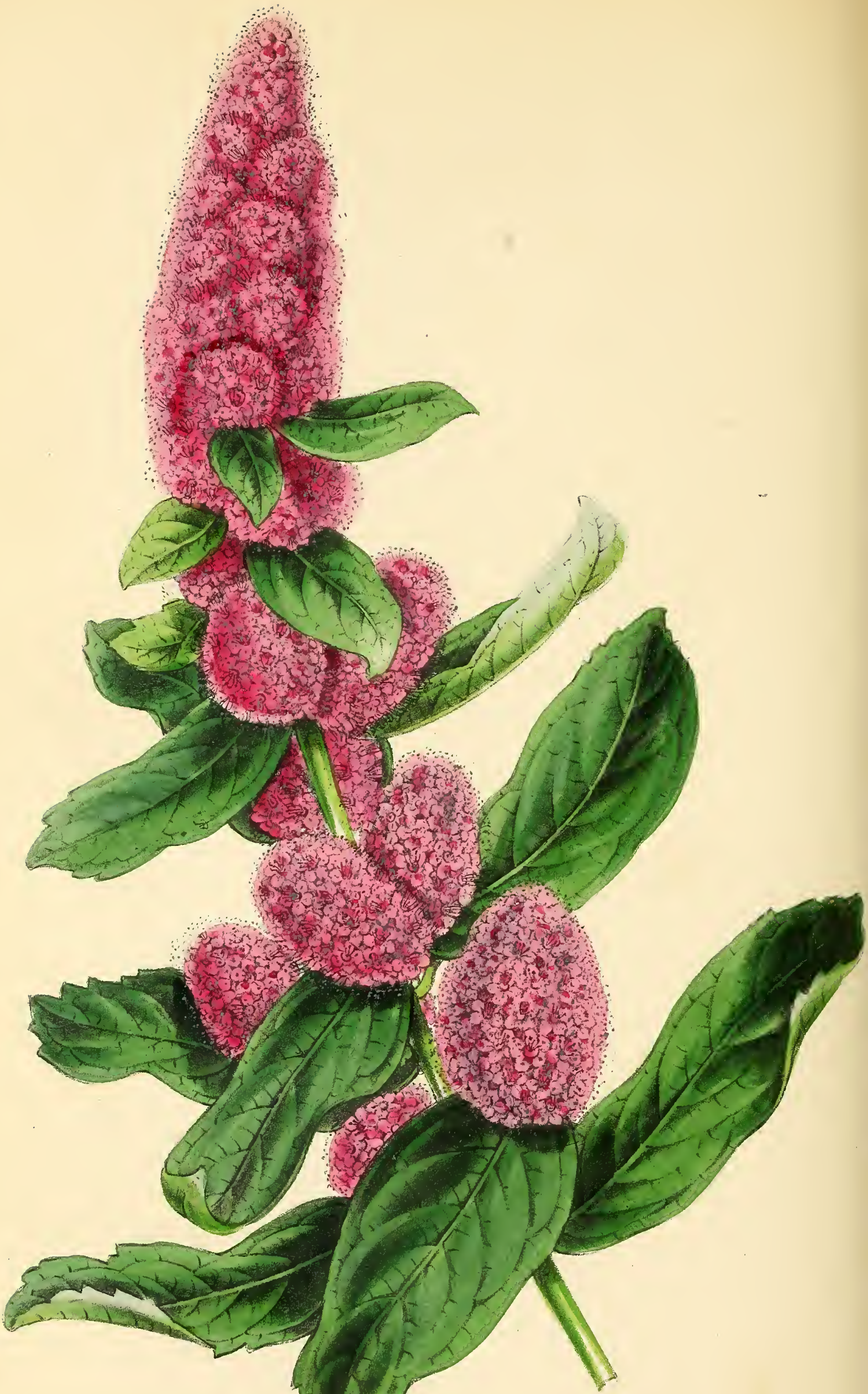
DR. LINDLEY, in his recent enumeration of the tooth-tongue Orchids, has anged the species under three sections. In the one, he observes, "the anther- ll is surrounded by a deep fringe, or membranous border; the two others are thout that fringe. The first constitutes the sub-genus (?) *Trymenium;* the ond and third are *Odontoglossum* proper. Of the second the lip is always ite, and generally broad and flat. Of the third, the lip is generally yellow, ver white, and most commonly narrow." *O. citrosmum* and *O. pulchellum* are mples of the first; the magnificent *O. grande* of the third; and the beautiful cies represented in our figure is an illustration of the second.

The vast amassment of imported Orchids in the Hackney Nursery has not nished a more valuable species for some time. The plant is small and neat, the vers of a pleasing delicate hue, beautifully marked, and elegantly arranged. A cimen, which Messrs. Loddiges received from Oaxaca, flowered last March; and ut the same time another species, *O. membranacea*, displayed blossoms of an ally handsome and very similar character. That plant, however, as Dr. dley remarks in the "Botanical Register," "has perfectly white flowers, h the exception of concentric broken crimson bands, which occupy the lower t of *all* the segments of the flower; its petals and lip are very blunt, and the er is very deeply heart-shaped; while in *O. Cervantesii,* on the other hand, lip is scarcely heart-shaped, and has no band-like markings; it, and the petals particularly acute, and the ground-tint of the flower is a delicate flesh-colour. teeth, too, which stand in front of the saucer-shaped stalk of the lip, are ger in the latter species."

These plants may either be grown in pots or baskets, or fastened to a block o wood. To produce vigorous pseudo-bulbs, they require to be placed in a warm moist, and shaded atmosphere, during the period of growth; and to promot flowering, they should be exposed to converse influences in their winter season The transition from the one to the other must be gradual; as the plants sho evidence of returning activity, warmth and humidity must be slowly augmented and as soon as the new growths are fully developed, these agents must be withdrawn by degrees, and more light admitted. The plants should never be kept i a warm or moist place while the flowers are open, as these conditions would haste their decay.

An increase may be effected by detaching the old pseudo-bulbs, and placin them on coarse, moist sand, over some source of bottom-heat, till buds are develope after which they may be treated as other plants.

The specific name was accorded by La Llave, in compliment to Vincent Cervantes, a Spanish Botanist.



Spiræ Douglasii

SPIRÆA DOUGLASII.

(Mr. Douglas's Spiræa.)

Class.
ICOSANDRIA.

Order.
DI-PENTAGYNIA.

Natural Order.
SPIRÆACEÆ.

ENERIC CHARACTER.—*Calyx* five-cleft, permanent. *mens* ten to fifty, inserted in the torus, lining the yx along with the petals. *Carpels* solitary, or several ether, rarely connected at the base, ending in short nts, sessile, rarely stipitate. *Seeds* two to six, fixed the inner suture of the carpel. *Embryo* inverted. *yledons* thickish.

PECIFIC CHARACTER. — *Plant* a shrub, deciduous. *Branches* and *peduncles* pubescent. *Leaves* elliptic, coarsely and unequally serrated towards the apex, clothed with hoary tomentum beneath. *Panicle* crowded with flowers, oblong, obtuse. *Flowers* small, rosy-lilac. *Stamens* twice the length of the corolla. *Calycine lobes* triangular, reflexed. *Carpels* five, glabrous, shining.

ALTHOUGH late importations of plants have greatly enriched our stoves and eenhouses, they have contained few things capable of existing in the open garden cept during summer. Hence, a novelty with the fine characters of our subject, ill be the more highly appreciated. It is a novelty interesting to all parties, hether possessed of a greenhouse or not; since it will brave our severest winters, d demands little attention or skill in its culture.

It was first discovered by the lamented and indefatigable Douglas, in his plorations of the north-west coast of America, about the Columbia and the raits of Fuca; but was not introduced to this country by him. Within the last e years a few plants were reared in the Glasgow Botanic Garden, from seeds nt to the Curator, Mr. Stewart Murray, by Dr. Tolmie, who gathered them at rt Vancouver. Blossoms were produced by these plants, for the first time, out two years ago.

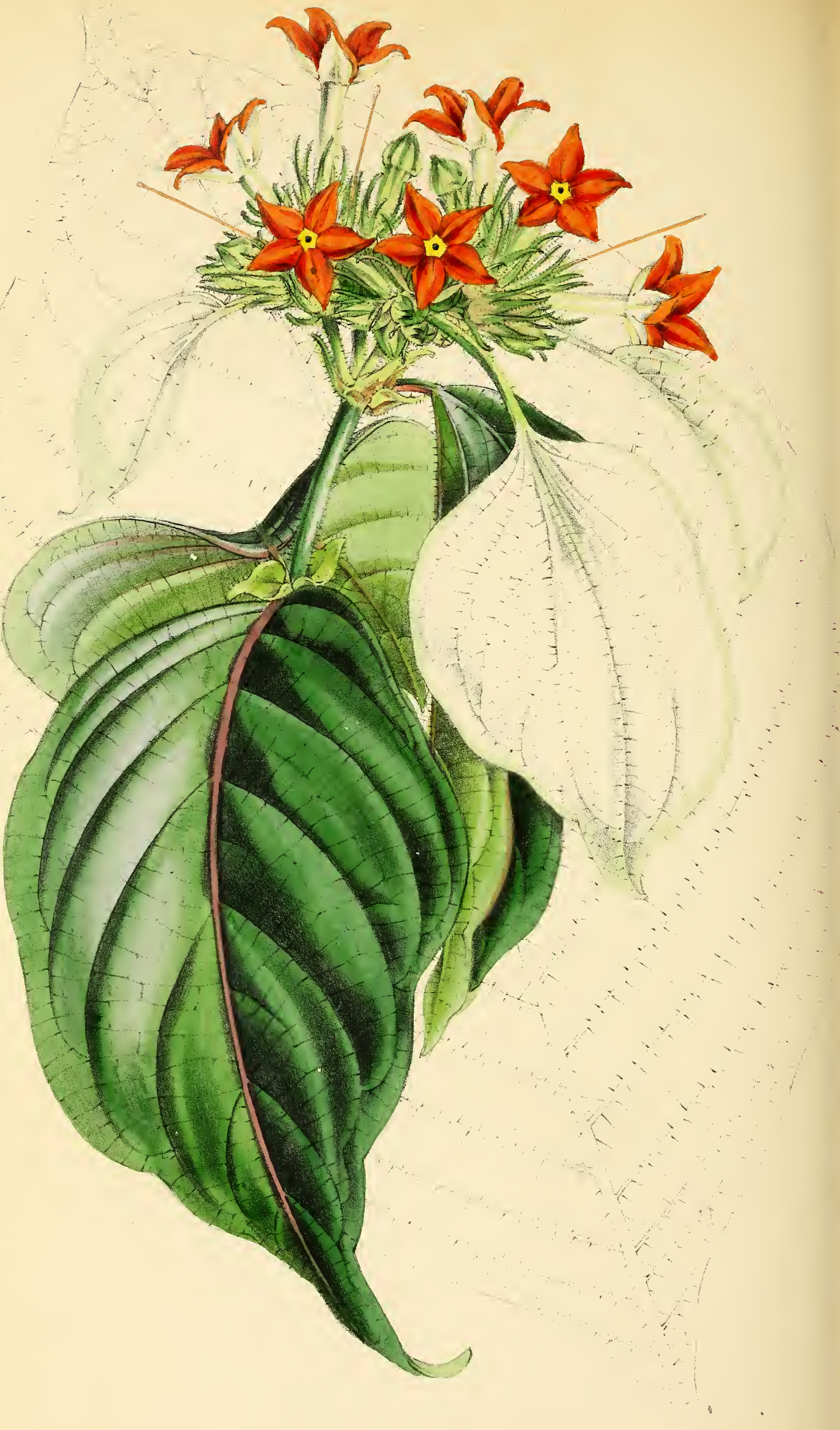
Not the least interesting quality of the species is the long period during which continues to produce flowers. Our drawing was made at Messrs. Low and Co.'s rsery, Clapton, from a specimen which flowered last July; and we have since eived specimens from Mr. Murray, who, in a letter addressed to us some time ice, states that "one of its recommendations is, that after the flowers of all other rubs have passed, it is found in perfection. Last year it was fine even when the st came on in October."

It makes a handsome bush, much like the *S. tomentosa*, ultimately reaching a ight of four or five feet; but it blooms at a much smaller size, and by layering the old shoots, very dwarf-flowering specimens may be obtained. The flowers are of a rosy lilac colour, and are most numerously produced in dense, compound, terminal racemes.

Many of the Spiræas make handsome shrubs for a lawn, but on account of their deciduous character they should not be very largely introduced. A few choice species, however, may be planted with good effect. In the wilder parts of the garden, masses of them, with their white or red flowers, have a rich appearance. They will grow in almost any kind of soil.

In common with other species, the present may be multiplied to a great extent by cuttings, which soon take root. It is also increased by layers.

The specific title was bestowed by Sir William Hooker in his "Flora Boreali-Americana," in commemoration of Mr. David Douglas.



S. Holden, del et Lith.

Mussænda macrophylla

MUSSÆNDA MACROPHYLLA.

(The broad-leaved Mussænda.)

Class.
PENTANDRIA.

Order.
MONOGYNIA.

Natural Order.
CINCHONACEÆ.

ENERIC CHARACTER.—*Calyx* with an oblong turbi- e tube, a five-parted limb, and deciduous, erect, te lobes, one of which is usually drawn out into a ge petiolate, reticulately nerved, coloured leaf. olla funnel-shaped, with a five-parted limb, and a ous throat. *Anthers* five, sessile within the tube, ar, inclosed, and sometimes a little exserted. ma bifid. *Fruit* ovoid, fleshy, naked at the apex, n the limb of the calyx being deciduous, inde- cent, two-celled; cells many-seeded. *Placentas* unculate, bifid at the apex, rising from the dis- iment, and appearing like a Burgundian cross. ds very numerous, small, lenticularly compressed, brous. *Embryo* in fleshy albumen, with the radicle thick, and turned towards the hilum.—*Don's Gard. and Botany.*

SPECIFIC CHARACTER.—*Plant* a handsome evergreen shrub. *Branches* tetragonal, brown; *branchlets* beset with soft silky hairs. *Leaves* ovate, acuminated, pubescent, green above, and pale villous beneath. *Stipules* broad, ovate, bifid, acuminated and recurved at the apex, nearly twice as long as the petioles. *Corymbs* terminal, trichotomous, shorter than the uppermost pair of leaves, very pilose, on short peduncles. *Calycine segments* foliaceous, broad, oblong-lanceolate. *Bracteas* large, very hairy under each division of the inflorescence. *Flowers* large, orange-coloured, hairy outside. *Berries* ovate, dark purple, hairy.

THIS fine Cinchonaceous plant, first described by Dr. Wallich, in the second lume of Roxburgh's "*Flora Indica*," above twenty years ago, and since figured Wallich's "*Plantæ Asiaticæ rariores*," (vol. ii. t. 180), has been introduced thin the last few years to the Exotic Nursery, Chelsea, by Messrs. Knight and rry, and flowered there for the first time in the summer of 1844. It blossomed ain in June, 1845, when the annexed embellishment was prepared, with the id permission of those gentlemen.

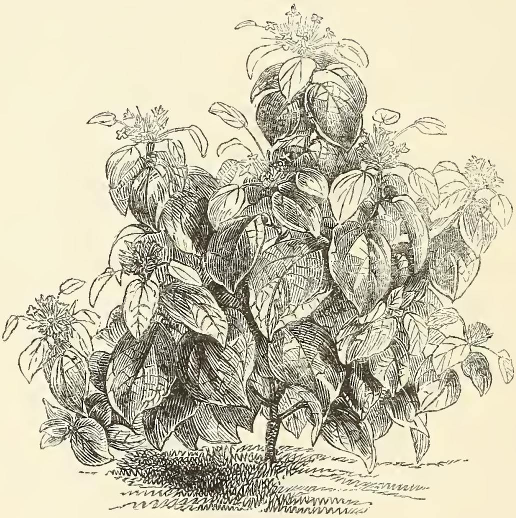
It is an upright spreading shrub, of a noble aspect; the branches amply orned with a most luxuriant foliage, and terminating in fine corymbs of orange ssoms, which have an increasedly rich appearance from the three broad, almost ow-white floral leaves that stand around them. In its native country, according Dr. Wallich, it sometimes acquires a tendency to ramble, when growing in ces where the roots spread amongst an over-rich soil; and it is not unlikely t plants under cultivation in our stoves might do the same, if subjected to a se, much heated atmosphere. At the Exotic Nursery it forms a bush about ee feet high, of the most perfect symmetry. If planted out in the border of a servatory, it would probably grow to five or six feet; and the magnificence of foliage would render it an object of particular interest at all times.

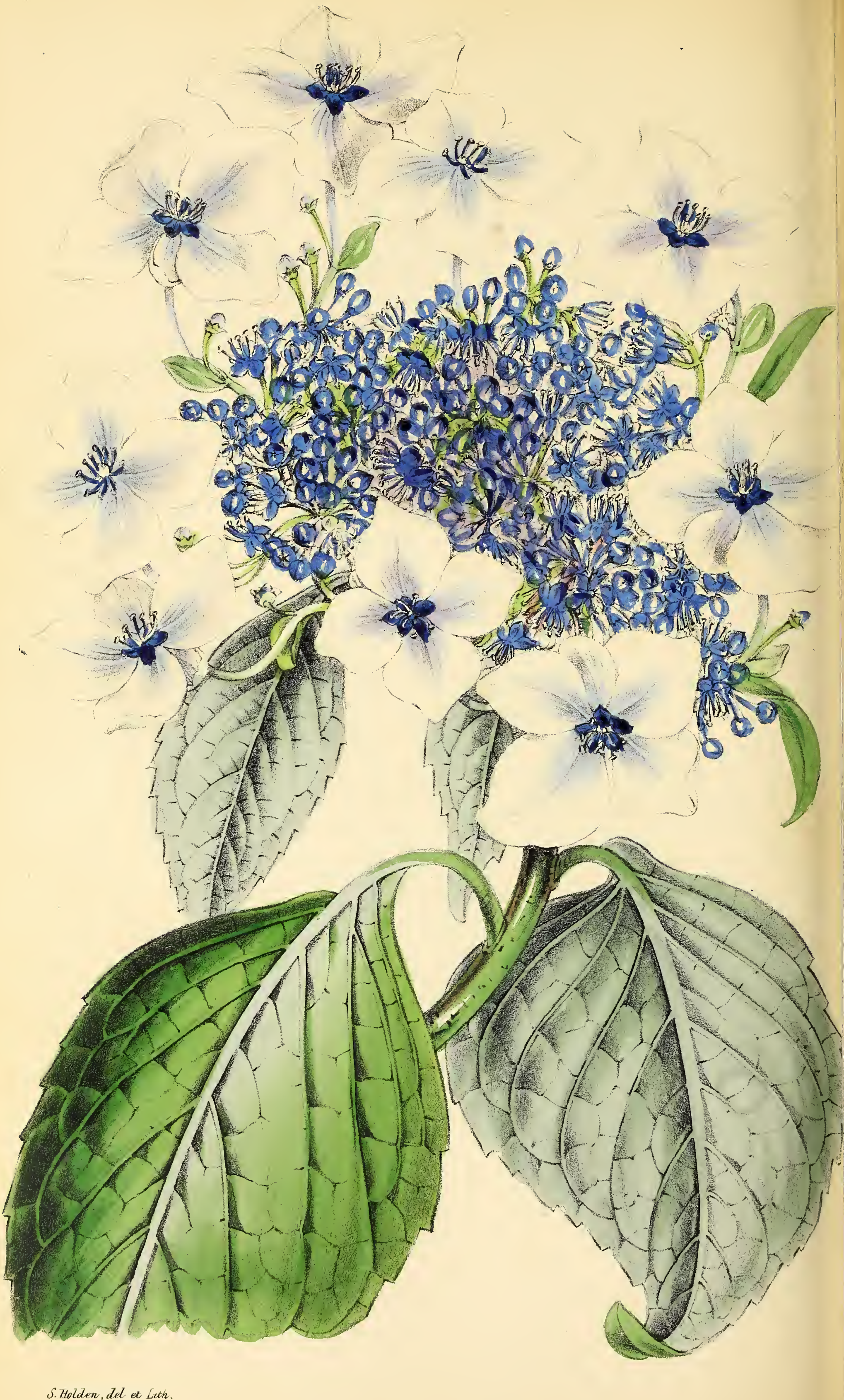
It was discovered by Dr. Wallich's collectors, "on the mountains of Chundragiri and Majarjoon, in Nepal, in blossom during the rainy season, in fruit durin the winter."

It does not appear to require a temperature much exceeding that of an ordinary greenhouse. In the stove its growth is more rapid, but less vigorous; th leaves are thin, and of a pallid green, and the flowers soon fall off. In the summe months, whilst it is flowering and ripening its shoots, a greenhouse will be quit warm enough. A very trifling attention will be sufficient to preserve it clothe with branches and foliage to the bottom of the stem. It may be planted in loamy soil, or in a compost similar to that recently recommended for the *Luculi gratissima.*

It is a species of rapid growth; hence, handsome bushes may soon be obtaine from cuttings of the young wood, which strike root with facility, planted in sand or a sandy soil, and placed in a close, moist heat.

The family name *Mussænda,* is the vernacular title of *M. frondosa.* Th specific appellation refers to the magnitude of the foliage.





S. Holden, del et Lith.

Hydrangea Japonica

HYDRÀNGEA JAPÓNICA.

(Japan Hydrangea.)

Class.
DECANDRIA.

Order.
DI-TRIGYNIA.

Natural Order.
SAXIFRAGACEÆ.

NERIC CHARACTER.—*Flowers* usually of more forms tl one, some of them being fertile and hermaphro- d *Tube* of *Calyx* hemispherical, ten-ribbed, rather ti cate, adnate to the ovarium ; limb permanent, fi toothed. *Petals* five, regular. *Stamens* ten. *Styles* tv distinct. *Capsule* two-celled, with introflexed v es, crowned by the teeth of the calyx and styles, flattish at the top, opening by a hole between the styles. *Seeds* reticulated, numerous.

SPECIFIC CHARACTER.—*Plant* an elegant, evergreen, branching shrub. *Leaves* ovate-oblong, acuminated, finely and glandularly serrated, quite glabrous on both surfaces. *Cymes* crowded. *Flowers* of two forms. *Corolline segments* six to ten, unequal, ovate-rhomboid.

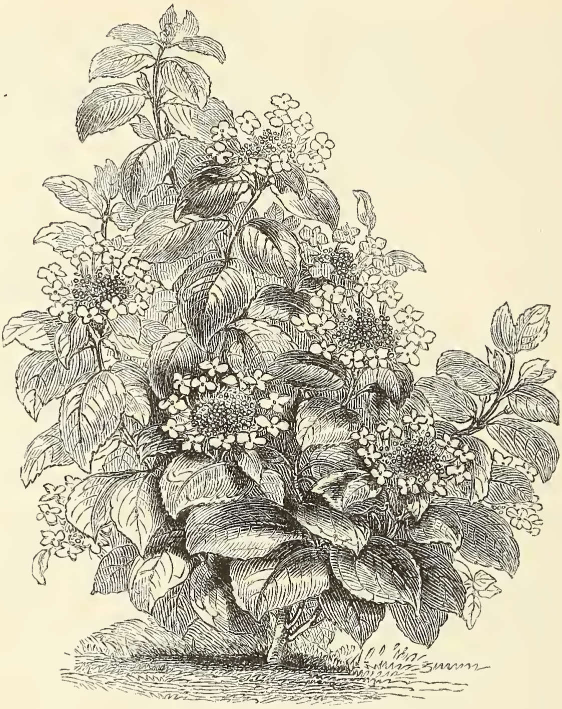
WE have been so long accustomed to see the old *Hydrangea hortensis* produce it immense flower-heads of a bluish, or a rosy hue, either upon the same or s arate specimens, that we almost cease to regard the matter as anything singular o wonderful. Of late years another species has been introduced, which also d plays both colours, but whether they are produced by different varieties, or by t same plant under different circumstances, seems to be yet a matter of dispute. that we know is that a specimen at Messrs. Low's nursery, Clapton, bears n e but blue flowers ; and it is said that those which have been reared from it a characterised by the same peculiarity. Moreover, specimens that we have k own for some time in other collections have been invariably of a rosy colour.

According to Siebold, who discovered the plant and transmitted specimens to I rope, its vernacular title is Kakoosa ; and there are two varieties of it, which t natives distinguish as Benkaku and Konkaku, the first with red and the s ond with greyish-blue flowers. From this it would seem that the variation is p manently vested in particular plants ; nevertheless we cannot but strongly s pect that it will prove the contrary.

The plant has an excellent free habit, emitting branches from every part, and s lom exceeding eighteen inches or two feet in height. The foliage is large and l d, but not quite so closely arranged as in the old kind. The flower-heads, t ugh possessing considerable beauty, are flat, and by no means so magnificent as t enormous clusters of its congener : the blue-coloured ones are decidedly the p ttiest.

Our drawing was prepared from the specimen already spoken of at Messr Low's nursery. As the specific name indicates, it is a native of Japan, where was detected by Siebold, growing wild in mountainous situations. It is al cultivated in gardens there by the natives, along with other species. Mr. Lov we believe, was the first who imported specimens to this country.

It proves to be about as hardy as the other, and requires similar treatmen The finest trusses of flower are always borne by single-stemmed plants newl raised from cuttings. But this species does not look so well in that style, as whe forming a moderate-sized bush with a number of flower-heads. The old wo must be cut out yearly to avoid a straggling character, and to keep the pla clothed with foliage down to the very base.



GUANO, IN CONNECTION WITH FLORICULTURE.

It might appear irrelevant to introduce the subject of Guano—the most potenial of all the so-called artificial manures of agriculture—in a work exclusively evoted to ornamental gardening; but as we hope shortly to make it evident that his wonderful substance contains all the elements of vegetable nutriment, and as, lso, we find that gardeners and florists begin to bend their attention to it, we ope that farther apology will not be needed for our present attempt.

Little more will be required than a faithful detail of the constituents of this ubstance to prove, beyond a doubt, that it must possess a power and energy xceeding those of common manures; a fact which also points out the necessity f employing the utmost caution in its use.

Analyses of various samples have been effected, and the results printed, since 804, when MM. de Fourcroy and Vauquelin examined the specimen introduced y Baron Von Humboldt; but it has been found that they all differ. At length, n 1843, Dr. Ure undertook an elaborate series of experiments, which appear to ave demonstrated that the only species to be relied upon for perfection of quality re those of Peru and Bolivia. Assiduous researches have confirmed, to our own udgment, not only the general accuracy of the Doctor's analyses, but the comarative worthlessness of samples obtained from other places; therefore, we shall t once proceed to enumerate the chemical constituents of what we are assured are enuine samples of the Guano of Peru, undisturbed by that slow but progressive ecomposition which inevitably results from exposure to air, moisture, and light.

True Guano is of a palish drab-brown, tinted with a faint shade of red. It heavier than water, bulk for bulk, and, to speak more correctly, its comparative pecific gravity—water being 1.0—is about 1.70, little more or less. Some pecimens are interspersed with granular, whitish particles, which are evidently oncretions of certain neutral salts; and this circumstance leads to the first essential emark, namely, that the components of Guano can be arranged under two distinct eads: the *soluble*, or those which can readily be abstracted by pure water; and he *insoluble*—that is, the substances which resist the solvent power of water, arm or cold.

Guanos, in the condition in which they are imported, contain more or less ater; by drying at a heat not greater than that of boiling water, some samples se eight or nine, others from fourteen to eighteen per cent.; the latter may be aid to be damp, a state which is, at the least, suspicious; for if it have not duced chemical action, it at least implies the presence of common salt in excess. he loss by heat being ascertained must be allowed for, in process 1, which onsists of subjecting from one to two hundred grains (for the sake of a "perentage" calculation) previously triturated in a wedgwood mortar, to the action of pure water for several hours, then pouring the fluid upon a weighed paper filter, and washing the substance with more water till the liquid pass free of colour and saline taste. This liquid will be of a pale brown, and pungently salt; and, being tested by litmus-paper, ought to produce the red tint to some extent, indicating the presence of a little free acid. By the converse of this experiment, substituting yellow turmeric paper for the former, if no change of tint to reddish-brown be discoverable, the Guano may be pronounced sound, and free from the alkaline reaction of ammonia.

It is not our object to trespass on the reader's patience, by any particular detail of the analytic processes: so far we have proceeded in order to show that Guano contains soluble salts, and these to the extent of about two-fifths of the whole weight, including that of the combined water separable by heat. The other three-fifths consist of dry substances not soluble in water. These proportions are assumed only as an approximation, for it rarely happens that two samples are precisely similar in their constituents.

The soluble salts, determined by the re-agency of alcohol, nitrate, or acetate of baryta, nitrate of silver, nitrate or acetate of iron, and by ammonia, are, first, *Urea*—that peculiar product which gives to urinous excretions their specific qualities,—sulphates of potassa and ammonia, muriate of soda (common salt), phosphate of ammonia, and, occasionally, oxalate of ammonia, and a little muriate of ammonia. This comprehensive list, subject to multifarious interchanges and modifications, under the agency of the electric vital principle of plants, offers not a single ingredient which is foreign to the vegetable organisation. In it are contained all the elements of those liquid manures which have been of late years advertised, and recommended as nutrimental appliances. Guano has furnished the type of all: experimental chemists have easily detected the neutral salts therein abounding, and some persons have passed off solutions of such salts, prepared in the laboratory, as efficient substitutes. But where shall we trace the *urea*—the animalised organic matters which float in and give colour to the true solution?

This question leads to a cursory notice of the second great process in the analysis of Guano, or rather of that series of operations by which are detected and fully exposed to view, first, a very considerable proportion—say eighteen per cent.—of *uric acid*, (which in itself combines oxygen, hydrogen, carbon, and nitrogen,) united with its small, definite equivalent of ammonia. Secondly, a greater proportion of undefined, azotised, solid matter, resolvable by heat, and a very powerful re-agent, into a considerable volume of caustic ammoniacal gas, and some hydro-carbonous gases. Thirdly, another great proportion of bone-phosphate, in a state of much finer division than that to which any process of grinding could reduce animal bones; and, therefore, prepared, with the azotised matter of No. 2, to fertilise the soil fully and durably.

When we consider attentively what a substance true Guano really is, and bring the mind to realise its constitution; taking also into the account that it is he fecal deposit of cormorants, gulls, and sea-fowl, that feed entirely upon fish ; he work of countless centuries, still going on, though slowly progressing, we annot fail to be struck with wonder and astonishment. There is not, perhaps n the whole world, a substance which comprises in a volume so small and compact, *ll* the decomposable appliances of *all* vegetables. Can it, then, be matter of urprise that men, greedy of gain and reckless of principle, should attempt, first o imitate—but failing in that, then to palm off spurious succedanea, resembling the rue material in nothing but the colour, and barely in that ?

Setting aside the question of purity or fraudulent adulteration, which involves nuch of doubt and perplexity, it must be evident, after what has been written, nd all but proved, especially by the late disclosures made in the *Gardeners' hronicle*, that no certainty can be attained by any other means than a rigid nalysis of every individual specimen. Such an analysis cannot be at present ndertaken by practical gardeners ; but any man of sense can determine one point f importance which, if established, will go far to prove the excellence or worthessness of a sample. This is done by simply mixing as much guano as will lie pon a four-penny piece with half as much quick-lime, fresh from the kiln, or a ew grains of potash, and so much boiling water as will reduce the whole to the onsistence of thin paste. Being rubbed together in a small mortar, or on a piece f glass, a very pungent odour of pure smelling salts will be immediately extricated, f the Guano be genuine and well preserved. If, on the contrary, the smell be eeble, the article is spurious, or damaged ; for if the ammonia really exist, and ecome revealed, it affords evidence, almost amounting to demonstration, of the eal quality of the manure.

From all that has been stated above, and in the communications of high hemical authorities, it must be evident that the floral gardener ought to employ he utmost caution in using an article which abounds in salts of most active and timulating quality. Such salts are produced in nature ; all of them have their pecific uses, but then they *are strictly* specific, and the earth yields them in very odified forms, and to an extent which cannot be injurious.

Plants growing in beds and borders select aliment suitable to their individual emperament ; but, in pot culture, we limit their range of pasture, and arbitrate he supply of what we still manure. Great errors may thus be committed, and onduce to much mischief and disease ; therefore in applying Guano, the quantity sed experimentally, whether in bulk among the soil, as top-dress, or in solution, hould be almost inappreciably small till experience sanction a more liberal supply.

What we want, above all things, is a rigid and faithful system of *organic nalyses*. Liebig first impressed this great truth, and we believe he is now engaged n a course of demonstrative experiments. Till we know the salts which every lant, or, at least, every tribe contains, we act in the dark, and apply our artificial ombinations empirically. It fortunately happens, thanks to the stimulus which as been given to a spirit of inquiry, that an apparatus for organic investigation can now be purchased for a very trifling sum. We have catalogues before us, which show that for three or four pounds, a person may furnish himself with appliances, mechanical and chemical, that will force Nature to answer, as it were, every reasonable question put to her in the form of a faithful analysis. What excuse can there be found, if any influential Horticultural Society remain without means of instruction, so cheaply attainable?

The *ashes* of plants, as Liebig was the first to impress, furnish the reply to every inquiry concerning the application of any sort of aliment which is specifically essential; and now, with this remark, we offer to the reader a few lines extracted from a prize-essay, by an American writer, which at this moment only has met our eye. This essay claims the serious attention of every tyro in the art of manuring, and we refer him to it, commencing at p. 246, of the "Farmers' Magazine," for September instant. In section 12, p. 258, there are most pertinent remarks on *ashes*, which, however, our limits constrain us to abbreviate.

"We have in ashes a great variety of substances; they come from the soil; they form a part of plants. The dead plant returns them again to their mother earth; or we, losing the volatile parts of a plant, its mould and ammonia, by burning, collect its salt as ashes. Let us see what these salts are—

THE BASES ARE—

Potash and soda.
Lime.
Magnesia.
Clay.
Iron.
Manganese.
Silex, or the earth of flints.

THE ACIDS ARE—

Carbonic, or carbon united to oxygen.
Phosphoric, or phosphorus united to oxygen.
Sulphuric, or sulphur united to oxygen.
Muriatic, essentially composed of chlorine."

In Guano we possess all these acids, and the greater number of the bases; in it, therefore, we possess the means of restoring old effete manures, and of conferring qualities on poor soils. But we require faithful analyses, to instruct us how to apply it with specific good effect; and these are in a state of rapid progress.

MANAGEMENT OF TROPÆOLUM POLYPHYLLUM.

At the time our figure of this plant was published, (Vol. x., p. 175,) appearances seemed to indicate that it would prove a shy-blooming plant. It is, however, with pleasure that we now find ourselves enabled to record, what indeed was then suggested, that the deficiency and rapid passing away of the blossoms only resulted from an unsuitable course of treatment.

On its first introduction, the species, being a native of Peru, was naturally considered a somewhat tender plant, and cultivated accordingly, in a pot, under ss. Afterwards, however, it was, for the sake of trial, planted in the open air a border with a western aspect, and it has stood there two winters without tection. One of these being, of course, that of 1844-5—a winter almost paralleled for its length and severity—there can now be no reasonable doubt of complete hardihood.

It is a plant which forms large underground tubers of considerable length, by ich it may be propagated with facility. These are divested of their stems and age early in autumn, remain through the winter in a quiescent state, and trude fresh shoots with increased profusion in spring. The species may be reased by dividing the tubers; each part containing a bud, will soon produce a urishing plant.

Perhaps the early maturation of the stems, and the consequent profound state torpidity at which the tubers arrive before winter, may be in some measure ducive to their hardiness. Hence it would be unwise to attempt to prolong season of growth and vigour to any considerable degree. At Messrs. Knight l Perry's it has been grown in a somewhat dry situation, in a border, the soil which is a light sandy loam. Probably greater vigour might be elicited by ploying a soil of a more retentive and a more nutritive quality; but such a nge would be likely to affect the hardihood of the plant in two ways: first, by arding the season of rest; and secondly, by retaining more moisture in the inity of the tuber during winter. Nevertheless, such a change may possibly adopted to some extent with benefit to the summer aspect of the plant, and hout much endangering its existence through the frosty months.

The utility of burying the tubers of Tropæolums has been adverted to in mer volumes: in this species they should be full four inches deep, in order to rease their safety from excessive cold. No hurtful consequences need be rehended from doing so, if the ground is properly drained; on the contrary, plants will grow with greater luxuriance. We conceive, also, that it will ays be better to leave the tubers in the ground undisturbed, than to remove m every year after the stems are withered: they will commence growing lier and also more vigorously. A portion of the soil may be removed occa-nally as it becomes impoverished, and a quantity of fresh earth added in its ce.

The shoots generally appear rather early in spring, and reach a flowering state ut the end of May or beginning of June, lasting till the latter part of July. ey should be trained over a sloping trellis, to show the flowers to the best antage. These stand erect and are closely arranged, appearing perfectly clear he handsome glaucous foliage. If a sufficient number of shoots are not sent up n the tuber, the strongest may be pinched back to within a short space of their gin; this will insure other buds to break, and thus produce stems in plenty. other pruning will be necessary. Managed in this way, it makes a very active and pleasing object. Perhaps the protrusion of flowers might be hastened by planting the tubers beside a conservative wall, where the youn shoots would be protected from frosts, and encouraged to spring sooner, and gro somewhat more rapidly than in the exposed border.

It produces seed, though not so freely as some of the species; sufficiently s however, to render it highly probable that varieties of an improved characte perhaps double ones, might be reared from it. Crimson streaks, or a rich ground colour might probably be obtained by cross-fertilising with such as tl *atrosanguinea* variety of *T. majus*, or the brilliant scarlet *T. Lobbianum* recentl introduced by Messrs. Veitch and Sons, of Exeter. This is a process we like keep attention fixed upon; for, magnificent as some of its results have alread proved, we believe that a vast deal more may be effected by perseverance with judicious selection of subjects, than anything which its influence has yet produce

ZINC FOR HORTICULTURAL PURPOSES.

IN conjunction with a good system of treating plants, there are some oth points to which it is at times useful to draw attention; amongst which we at prese fasten upon that of perfecting economy, neatness, and general efficiency of tl different apparatus employed in a garden. Many substances have of late yea been made available for a variety of purposes in gardening, by which the oper tions of the culturist have been much facilitated, and the general aspect of tl garden improved. We have before spoken of slate, and now bring forward anoth substance—zinc, which has been found useful in several ways, and appears to l possessed of sufficient merit to warrant a short notice.

The material being light and free from corrosion, it is more eligible for man purposes than either iron, lead, or tin-plate. It appears to be well suited for tl manufacture of watering-pots, and similar utensils in every-day requisition. It of course somewhat heavier than tin-plate, but this is so trifling in an ordinary sized watering-pot, as to be a matter of little consequence. The primitive cost al is greater; this, however, is more than balanced by the greater length of time will last, and by there being no necessity to use paint, which is quite indispensab with tin. Besides, even when every precaution has been observed against it, it almost impossible to keep a tin watering-pot from corroding, and hence requirin frequent repairs. Roses to fit them may also be made of zinc, as they are no usually made of tin; but we prefer having the perforated part of a rose of copp or brass, and made loose, to screw into a socket of the same material fastened upo a zinc or tin shank. With this contrivance, whatever impurities exist in tl water may be prevented from materially obstructing its passage through the perf rations, by occasionally unscrewing the end and cleaning it out. It is of som importance in economising time, for it would occupy more time to force wat thr gh a clogged-up rose than would be spent in unscrewing and screwing on the top vhen it might require it.

nother purpose for which zinc is eligible is as a substitute for lead in the cor ruction or lining of cisterns. It is not only a less expensive article, but has a mu neater appearance. In the same way small tanks of various forms might be ma for the cultivation of aquatics ; and, for the sake of neatness, inclosed in a fra of wickerwork, upon which many small species of Orchidaceæ and Lycopodiu s might find a home.

gain, zinc forms an admirable material for gutters, to receive and convey away the vater from a glass house or other building. When employed in this way, it shc d always be braced up well with iron supports made to fit close to the under sur ce of the gutter, otherwise in heavy rains the weight of water might depress it m the level, between the supports, and thus render it incapable of conveying off ie water. Zinc gutters have a much neater and lighter appearance than wo en ones; in fact, wooden ones ought never to be employed, as they give the fro of a house a clumsy aspect, and cause a greater obstruction of light than zin ones.

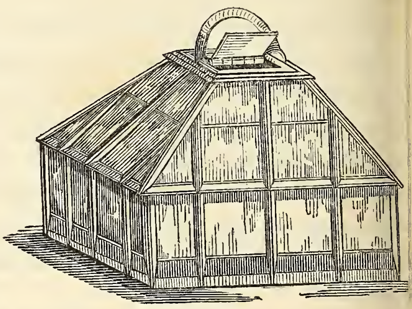
inc gutters, or troughs of different lengths, are sometimes formed so as to fit on ie top of round hot-water pipes for heating houses. In this way they are us l in houses where a considerable degree of humidity is required at certain se ns; and more or less moisture might be furnished by covering either the whole or ly a part of the pipes. The troughs, moreover, may be emptied at any time wl the external weather renders it imprudent to keep a very moist atmosphere wi in; and when they are no longer necessary, they may be entirely taken away, an set by, in some dry shed, till they are again required. Hence they possess some ad ntages of no little moment over troughs fixed to the pipes.

n an admirably arranged Orchidaceæ house not long ago erected at the Messrs. H derson's Nursery, Pine-apple Place, fitted up with slate shelves over the hot-w r apparatus, a semi-cylindrical piece of perforated zinc plate is inserted be veen each length of slate, to facilitate the passage of heated air. A layer of sa y soil is placed upon the slate, and kept damp during the growing season. By th means the roots of the plants set there are provided with a genial bottom-heat, an there is a constant circulation of warm air through the perforated plate.

Many gardeners are partial to labels of this metal. When cut out with a pu h or chisel of an oval form, leaving a short leg to fix them in a pot, and either pa ted and lettered, or written upon with a prepared ink, they look very neat w the head bent down over the edge of the pot. Of a larger size, they are so etimes used for water-plants in ponds, the oval head attached to a rod of iron fi ly fixed at the bottom of the water, and sufficiently long to raise the label a fe inches above the surface of the water.

Zinc is also moulded into handsome vases and stand-bottoms for placing plants u n in a room, so as to catch all the water that drains from the pots. These are highly ornamental when well painted of a stone or marble colour, or whatev other colour may accord best with the apartment. Of course such stands shou be immediately emptied after every watering, by a small ornamental tap, unle the plants are in Hunt's patent pots, or elevated so that the hole in the botto may stand clear above the water.

But perhaps the best application of zinc which has yet been made, is in t manufacture of hand-glasses. Our woodcut represents one of an improved for which Messrs. Rollisson had constructed three or four years ago for propagational purposes, and, as it gave the greatest satisfaction, the plan has since been very extensively employed in their nursery at Tooting. The framework is formed entirely of zinc, and divided into squares by zinc bars, with a ledge for the glass to rest upon. The squares of glass are fixed with putty, which is afterwards painted with a lead colour. On the top of the framework there is a wire handle attached to two small upright piec of zinc, for convenience in shifting the glass from place to place ; and imm diately beneath the handle are two small lids of zinc, hinged upon a wire in t middle, running from one of the raised pieces of zinc to the other. These li together cover an aperture about four inches square. The upright plate of zinc each end is intended to keep the lids or ventilators open ; and they are set close as to be capable of holding them up at any angle, without other support.



These hand-glasses are lighter than those constructed with leaden frames ; a as zinc is less pliable than lead, they are not so apt to be put out of form by accidental blow ; hence they economise glass. The ventilators at the top a obviously for the purpose of allowing the admission of air to cuttings after they a struck, and thus preparing them for the entire removal of the hand-glass. glass is now much cheaper, larger panes may be employed, and some of the cros bars dispensed with. Miniature greenhouses, for growing plants in rooms, ma be constructed of the same materials, and after a variety of ornamental designs.

Before quitting the subject, we may observe that galvanised iron, (which is ir coated with zinc by a particular process,) has also been used in several ways co nected with Horticulture ; but until the merits of the material have been more full tested, it would be premature to offer an opinion. Watering-pots, however, ha been in use for the last twelve months, and are so far satisfactory ; at the Hamme smith Nursery, Messrs. Lee have employed it for open hot-water gutters to he pits ; at Brooklands, it has been formed into hot-water pipes for a vinery ; and has been used largely for roofing sheds in various places.

CULTURE OF BEGONIAS.

WITHIN the last few years this genus of plants has risen much in the estima- on of the floral public, partly through the introduction of a few highly interesting rieties, and partly owing to the progressive improvement which their culture has ndergone. Still we believe they are not yet such universal favourites as they ust eventually become, when their merits have been more extensively elicited id made known.

We hardly know a genus of plants which may be rendered more acceptable in collection where floral beauty and handsome growth are desired; and there are w that display more strikingly the evidences of an appropriate and attentive, or mistaken, careless treatment. The singular form of the leaves, and in some becies their satiny upper surface, and in others their blood-red under surface; the leasing and conspicuous arrangement of the inflorescence, the delicate white or uish-tinted petals and yellow stamens of one kind, and the scarlet or coral-like ue of another; the long endurance of the blossoms, and in some species their agrance—these are all features which are universally esteemed and admired; and e may add, that there is scarcely a month of the year in which some one or other the species may not be seen in the perfection of flowering.

Popular notions have long prescribed stove culture; hence many have been eterred from attempting their cultivation, who would otherwise have delighted them. Such, however, is by no means indispensable in the management of veral species, though all are certainly benefited by the application of considerable armth in the earlier stages of their growth.

The station most congenial to their nature, and most incitative of a speedy evelopment, is one where they can be supplied with an atmosphere uniformly ioist, and the roots exposed to a gentle bottom-heat. And in no place can this e better managed than in a common frame placed on a hotbed, or in an ordinary rick-pit, heated either by fermenting materials, or by a tank of hot water. Vhichever mode of heating be adopted, the degree of warmth furnished should e suffered to lessen gradually as the plants advance in growth, till they commence eveloping their blossoms, when (in the summer season at least) it may be entirely ispended. By this gradual reduction of artificial heat, the plants will not only e more robust and capable of enduring greater hardships, but the flowers will last nger and acquire a finer tint.

During growth, moreover, it is essential to supply water with a liberal hand, nd to shelter them from the mid-day sun-light; for they are generally found in ieir natural haunts, occupying a humid soil in some sheltered shady place. The nly danger which can arise from this, lies in using a soil of an unsuitable texture, r the want of effective drainage. If water can pass away quickly from the soil, ist leaving it moist, without rendering it sodden, there need be no fear of evil resulting from copious applications. It must be remembered, however, that we are now only speaking of plants which are actually growing freely: before the plants have recommenced vegetating, they should receive no water, or very little, and for some time after, it must be dealt out in a sparing though gradually increasing quantity. Plants with a diseased or feeble growth cannot bear so much water as those which are growing luxuriantly, and of course consuming more for their support. The species, moreover, with small leaves and tenuous stems, demand less than those of a coarser habit. A healthy plant in full vigour of *B. heracleifolia* will require at least five times more water than it would be proper to apply to a similar plant of *B. Martiana.*

Like most other plants of free growth, Begonias delight in a good share of liquid manure. Guano in small quantities well diluted with water is a beneficial substance. But the same rule which applies to the administration of water, ought also to regulate the application of a solution of guano or other liquid manure; as the quality and strength in which they may be given with benefit to the robust growing kind, would act injuriously upon those of a more delicate character.

Soils of various descriptions are advocated by different cultivators, some preferring a light sandy earth, others peat, and a third loam. Each of these may suit particular species, but none of them, we are persuaded, can be used generally with so much advantage, as a rich soil composed of about equal quantities of a stringy peat, thoroughly decayed leaves, and moderately tenacious loam, consisting of the rotted turves from a pasture. A large amount of vegetable matter will be beneficial to the stronger-feeding species, whilst those of finer growth will thrive better in a compost containing a greater portion of peat.

The present system of allowing plants larger pots has produced a great improvement in the culture of plants generally; and we may say, particularly in this genus, and others of rapid growth. Most of the Begonias grow with great freedom, if they are encouraged to do so, by giving the roots good soil and plenty of pot-room. On the other hand, if the roots are confined, the plants are prevented from growing well, and forming handsome foliage of good colour; and of course the number of flowers also is very greatly diminished. It is right to observe, however, that it is not a good plan to remove a plant late in its growing season from a small pot to one much larger: if more soil becomes indispensable to maintain the plant in health and vigour, it should only be shifted to a pot a size bigger. Large shifts are only proper when the plants are just aroused from a quiescent state and commencing their growth; if, at that time, the roots have plenty of space filled with good earth to ramify amongst, the plants will acquire both a larger size and handsomer appearance than under a starving, stinting treatment. They must have branches or they will not be good specimens, and these must be produced naturally in the course of the main stem's growth, and not by any forced pinching-back system. Now plants that are not supplied with abundance of nourishment at the roots, are exceedingly liable to run up with a single stem, and

ldom disposed to emit many side-growths. Such species also that, like *B. ra-*
entacea, have hardly any real stem, and are mainly dependent on their remark-
le foliage for winning esteem, are completely spoiled when the roots are
amped. The leaves, instead of developing fully, turn down at the margin with
crumpled look, when little more than half-grown. Yet we find people condemn
ese plants as unworthy of cultivation ; whilst the real and simple truth is, that
ey have never tried what cultivation would do for them. Any other plant
ould cease to be beautiful if placed under circumstances as much the opposite of
ose which are most congenial to it.

We are surprised that so few people ever think of planting these charming
ings in a border, which is decidedly the best method of bringing out their capa-
ilities. Many of them will thus do well in a house intermediate between the
reenhouse and the stove, and make handsome bushes two or three feet high.
everal, we have little fear, might also be made to flourish in a greenhouse border, as
r instance, the *B. Evansiana*, sometimes seen thriving even in cottage windows.
he most effective way of carrying this out would be to have a border or division
f a border expressly appropriated to them. It would be necessary to take them
p, and renew the soil, at least to a partial extent, every other year at the farthest,
s they soon exhaust it. The old shoots, also, of the caulescent kinds, should be
ut away yearly, to encourage the strong stems that push up from the root.
hose with tuberose roots ought to be replanted every year, as many of them
crease to a great extent by means of the small tubers usually found beneath the
ain ones.

Plants, which would otherwise make fine specimens, are very often spoiled
hrough nothing else than the want of pruning. Some cultivators would seem to
ave acquired a strange notion that these plants will not bear the knife : the fact
s, they will hardly acquire any excellence without it. In some of the large
ollections about London, we have sometimes noticed an old stem of some such
pecies as *B. digitata*, towering up seven or eight feet in solitary grandeur, without
leaf to adorn it till within a few inches of the summit. It would be folly to
xpect such plants to look healthy or to flower well. None of the caulescent
inds should be suffered to retain any stem more than two years, and the
enerality only one. The noblest specimens are always formed by those which
onsist alone of the strong suckers which are annually thrown up from the roots.
By leaving the old stems upon an occasional specimen, the species may be had in
lower at different seasons ; but if the stems are retained longer than the second
year, both leaves and flowers dwindle to a very inferior size. It is true suckers
will not be well developed unless the roots have plenty of room to spread, and a
good soil and atmosphere to grow in ; but if they receive liberal encouragement
they are capable of forming by far the finest specimens.

A collection of species, embracing only those which are most handsome and showy,
would require more space than can generally be spared for one family in an ordinary

stove; that is, to grow each species as it ought to be grown. The decreasin price of glass, however, will eventually render the erection of more houses a muc less expensive undertaking. We would therefore suggest a separate house to b devoted to this family conjointly with the tribe of Gesneraceous plants, which i also already too extensive to allow even the choice species and varieties alone to b cultivated properly in the miscellaneous stove. And, let it always be remembered that a few specimens well grown are ever infinitely more beautiful and pleasin than the myriads of half-starved plants, almost destitute of flowers and of foliage which disgrace the collections of those who grasp at more than their mean can accomplish.

FLORICULTURAL NOTICES.

NEW OR BEAUTIFUL PLANTS FIGURED IN THE LEADING BOTANICAL PERIODICALS FOR SEPTEMBER.

Anigoza'nthus pulcher'rimus. "One of the most beautiful of this fine genus from it copious and richly coloured flowers and flowering branches; the former being bright yellow, th latter clothed with scarlet hairs, curiously branched on a yellow ground. It is a native," continues Sir William J. Hooker, "of the Swan River settlement, where it was detected by ou indefatigable friend, Mr. James Drummond. From seeds sent by him, it has been raised b Mr. Low, of the Clapton Nursery, to whom the Royal Botanic Garden owes the possession of fine plant. It has not yet, as far as I am aware, bloomed in this country, and our figur is taken from a dried native specimen sent by Mr. Drummond, in which, from the natur of the plant, and peculiarity of its vestiture, the form and colours are as well preserved a if seen in a living state. Perhaps in the general structure of the blossoms it comes nearest t *A. flavidus*; but the flowers are much shorter, and the panicle, and leaves, and clothing, are al very different in the two species. It loves a light sandy soil, and the protection of a good greenhouse, and will prove a highly ornamental plant to our gardens." When in flower the plan stands two or three feet high. The leaves are of a linear falcate form, with an acuminat termination, and are clothed with a dense hoariness. They are most abundant, though smaller towards the bottom of the stem, gradually becoming more remote and longer upwards. Upon the flowering-stem the leaves again decrease in size, till it becomes a large flowering panicle with lanceolate bracteas at the origin of the branchlets. There are several flowers on each branchlet, which, with their large size and rich yellow colour, cannot fail to prove highly attractive. *Bot. Mag.* 4180.

Aza'lea Læti'tiæ. A handsome and fragrant garden hybrid, reared by the Hon. and Rev the Dean of Manchester, in his garden at Spofforth, who gives the following account respecting it. It "was obtained, with others, from seed of a common *Rhododendrum Ponticum*, impregnated in the greenhouse at Spofforth by pollen of *Azalea*. Several seedlings raised there perished, as well as others, by the pollen of an orange *Azalea*, and a multitude of the stock of seedlings from *Rhodora Canadensis*, by *Azalea Pontica*, of which one of the survivors, under the name *Az. Seymouri*, has been figured; and also of *Rhododendron arboreum*, by the variety of *Azalea* called *mirabilis*. From the difficulty of finding any soil in the neighbourhood that would suit these hybrid plants, which are delicate before they have acquired strength, the soil at Highclere was more congenial to their growth, and some from this seed by *Azalea Pontica* were preserved there. I have one yellower than this, of which the leaves are rather more durable, and one of which the colour is tinged with a coppery purple. The leaves are rather more durable, broader, and blunter, than the leaves of *Azalea Pontica;* but in this, as in almost all hybrid plants, the male type greatly preponderates. It is difficult to conjecture why, in expelling the purple of the female flower, the yellow of the male should have substituted white. The mode in which colours act in ybrid crosses is singular. When the bright yellow flower of the white turnip is crossed with the ll golden of the Swede, an intermediate colour is not obtained, but some of the mules (as to the lour of the flower) follow one parent, and some the other. When a blue *Anagallis* is crossed ith the orange coloured, the effect is to discharge the yellow from the orange, and leave the dull d which was combined with it, while the blue remains in abeyance. One plant sometimes retains e ten stamens of the female, and sometimes they are reduced to nine, or eight, or even nearer the quota of *Azalea.* In order to obtain a cross with the leaves more permanent, and like ose of *Rhododendron,* the pollen of the fine white cross between *R. Ponticum* and *maximum,* or *Caucasicum,* should be applied to *Azalea Pontica, Sinensis,* or *Calendulacea.* The yellow d coppery mules of the late Mr. Smith, of Norbiton, were obtained from that white *Rhodo-ndron* by the pollen of *Sinense,* and their leaves are not more durable than those of *Rhododendron zalea) Lætitiæ.* It being desirable that no garden varieties should have adjective names, and thereby confounded with species, this plant is named *Lætitiæ,* after the Christian name of the on. Mrs. Herbert." *Bot. Reg.* 51.

Chiri'ta Zeyla'nica. "Of the family of *Cyrtandraceæ,*" writes Sir W. J. Hooker, "lately admirably illustrated by Mr. Brown, and more fully described by De Candolle, father and son, ry few species indeed have been in cultivation, and two of those that are at this moment ossoming in the Royal Gardens of Kew, do not appear to be anywhere described. Our owledge of those we have will lead us to seek for more; since, like their affinities, the *esneraceæ* (of which, indeed, Mr. Brown considers them a group or section), they are of great auty and easy cultivation; and they seem to abound in the East Indies, as the true *Gesneraceæ* in the tropical parts of the New World. The generic *Chirita* of Hamilton (written *Chirata* in on's 'System of Gard. and Botany'), is said to be altered from the vernacular name of one of e species, and of course of Indian origin. Our present species is a native of Ceylon, and was ised from seeds sent from that island to Mr. Henderson, the scientific gardener to Lord itzwilliam, late at Milton, now at Wentworth." It is a beautiful plant, standing about a foot gh, clothed with ovate-acute leaves, showing the veins prominently. The flowers are of a rich rple colour, funnel-shaped with a spreading border, and are carried in a panicle considerably nger than the leaves. It flowers, also, through most of the summer months; and is, indeed, e of the most desirable and engaging stove-plants in the country. Specimens have been blos-ming for some time in the Royal Botanic Garden at Kew. *Bot. Mag.*, 4182.

Chlor'æa vire'scens. Dr. Lindley says this is "one of those beautiful terrestrial Orchids hich, under the names of Pichiguen, Gavilu, Azuzena, Pica de Loro, &c., are most charming naments of the subalpine pastures of the Cordilleras of Chili. The present, which is one of the est, has been reared by Mr. Cameron, the intelligent and skilful curator of the Botanic Garden, irmingham, by whom it was exhibited at the last May exhibition in the garden of the Horticul-ral Society. Mr. Cameron regarded it as the *Chloræa chrysantha* of Pöppig, in which he is obably correct; but it is also the *C. virescens,* so called on account of the green veins which are awn over the orange ground colour of the gaudy flowers, and the latter name being the oldest ust be retained." It is to be hoped that some pains will be taken to procure the roots of these ants, now that the possibility of cultivating them has been shown. "They are as common over the subalpine country between Conception and Valparaiso, as the meadow orchises here. It ill be necessary, however, to mark their stations when in flower, and to take them up only when e stem and leaves are withered." *Bot. Reg.*, 49.

Cymbi'dium Master'sii. Obtained from the East Indies in 1841, by Messrs. Loddiges, and wered in their collection last December. "It is a very distinct species, with snow-white wers, sweet-scented, with the fragrance of almonds. Its erect flower-stalk, closely covered with ng green sharp-pointed equitant imbricated sheaths, is quite unlike that of any other species. was, we understand, named by the late Mr. Griffith after Mr. Masters, one of the principal sistants in the Botanic Garden, Calcutta." *Bot. Reg.*, 50.

Echinoca'ctus Leea'nus. This is a small species, but not the less beautiful on that account, r the handsome cream-coloured flowers are large compared with its size. It was "raised by essrs. Lee, of the Hammersmith Nursery, from seeds sent from the Argentine provinces by r. Tweedie, of Buenos Ayres, in 1840." A specimen flowered in the Cactus-house of the Royal otanic Gardens of Kew, last May. It may rank near *E. multiflorus.* *Bot. Mag.*, 4184.

Echinoca'ctus multiflo'rus. A larger species in every respect, and remarkable for i prodigality of blossom. The flowers are nearly white, and bear much the same proportion to tl size of the plant as those of the preceding. The tubercles, however, and the spines, are large It is "from the rich collection of Cactuses in the possession of Mr. Palmer, of Stockwell, nea London, who obligingly sent a specimen to Kew on the eve of its blossoming." Its native countı appears to be unknown. *Bot. Mag.*, 4181.

Eremosta'chys lacinia'ta. The English name given to this showy herbaceous plant is tl "Jag-leaved Desert-rod." It "is a common inhabitant of the eastern side of Caucasus an the adjoining countries, where it is found on dry hills. Its great fleshy roots are evidently adapte to such situations only." Under cultivation it grows to twice the size it attains in a wild stat and the leaves are more than as broad again. What it gains in luxuriance, however, it loses i attractiveness, for the flowers are smaller and more hidden. "This seems to indicate that tl plant had been grown in too damp an atmosphere. It appears to be intended by nature to resi even a Persian summer." *Bot. Reg.*, 52.

Garde'nia Stanley'ana. A noble plant, with erect trumpet-formed flowers eight or nir inches long, and nearly five broad, standing on the outside of the plant. They are of a pa colour, with the exception of the markings about the throat, which bear some resemblance to tl Japan Lilies, though not so brilliant. The species is also remarkable for its elegant habit ar fine foliage. It is a native of Sierra Leone, and may be procured of Mr. Glendinning, of Turnha Green. Another species from the same quarter, which Dr. Lindley believes to be amongst tl unknown plants now in some of the stoves of this country, has somewhat smaller flowers, of leathery texture, and covered over with a close fur. To this plant he has given the title *G. Whi fieldii*, after the gentleman who discovered it. *Bot. Reg.* 47.

Gompho'lobium versico'lor; var. *caulibus purpureis.* A pretty greenhouse plant from tl Swan River, raised at the nursery of Messrs. Lucombe, Pince, and Co., Exeter. It is a plant an upright shrubby habit, with large richly-coloured flowers. *Bot. Mag.* 4179.

Labi'sia pothoi'na. This very singular plant flowered last year in the garden of the Hor cultural Society. It had been received from Penang, without a name, in a collection of curio things liberally presented to the Society by T. Lewis, Esq. It was considered a *Pothos*, some such plant, before it flowered, and no one suspected its being an Exogen. It proves, hov ever, to be a new form of Ardisiads, remarkable for its singular way of growth, and becau "each lobe of the corolla resembles the bowl of a small spoon, in the hollow of which lies stamen. From the appearance of Mr. Griffith's specimens, we apprehend that the plant occupi very damp shady situations." It seems disposed to ripen seed, and this will probably be the on means of multiplication, as the stems offer no means for the purpose. It requires a stove hea and is grown in loam and peat. *Bot. Reg.* 48.

NEW OR INTERESTING PLANTS RECENTLY FLOWERED IN THE PRINCIPAL METROPOLITA GARDENS.

Anemo'ne japo'nica. A gigantic species, growing as much as three or four feet high, ar considerably branched at the upper part. The flowers are very showy, being about three inch in diameter, and of a beautiful rich crimson-pink colour. It was sent from the north of Chi to Chiswick, by Mr. Fortune, and was lately exhibited at the rooms in Regent Street. It expected to prove hardy, or nearly so.

Ce'strum aurantia'cum. This plant, as cultivated in the Chiswick Gardens, is decidedly o of the finest of autumnal-flowering greenhouse shrubs. It possesses a good habit and fi foliage, with clusters of orange-yellow blossoms. The fruit consists of a roundish white berry.

Heliotro'pium inca'num. A species lately imported from Peru by Messrs. Veitch, Exeter. The flowers are white, and emit a fainter and less pleasing odour than the comm species; indeed, it is altogether an inferior plant.

Indigo'fera deco'ra. A fine plant with handsome pinnate foliage, and delicate pink flowe in spikes. It was sent from China, by Mr. Fortune, and has bloomed in the collection at t Horticultural Society's Garden.

Lilium, *varieties*. Amongst an extensive collection of seedling Liliums reared by Mr. oom, of Clapham Rise, from seed of *L. atrosanguineum* fertilized with *L. bulbiferum*, we ticed some time ago many very handsome flowers of a rich crimson fleckered with large dark tches. The height of the plants varies from about six to eighteen inches. We were rticularly struck with their magnificent appearance growing in beds of considerable extent, d planted rather closely. Their richly-coloured flowers and dwarf habit, render them well ited for planting in large masses on rockwork, or here and there upon the outskirts of a rubbery.

OPERATIONS FOR OCTOBER.

The general aspect of the garden now begins to indicate the near approach of winter. Most the splendid flowers that have spread out their beauties through the summer months, if not eady disfigured by frost, will be beginning to fade. The leaves of the forest trees are never ore lovely in their brightest green than now that they are fading, and each assuming tints culiar to itself.

The present time, therefore, will be the most appropriate for observing the effects of planta- ons already formed, and acquiring ideas for the formation of new ones. Each kind of tree ust be noticed, and how the tints of its foliage harmonise or contrast with the foliage of those ound it. This method will be found eminently serviceable, and will prove in the end much ore satisfactory, than planting without any previous examination of the effect produced by rtain intermixtures.

A similar examination should also be extended to the flower-plots, if that work was not tended to in September. It is now somewhat late ; nevertheless, some idea may yet be formed om the remnants of summer beauty which still exist. The best way is to have a plan of the wer-beds sketched upon paper, and to make all the arrangements for planting each bed the cceeding season, whilst the effect created by last year's arrangements are still visible. Hence will be easier to correct anything that appears objectionable, and to judge what would be the fect of any alterations that may suggest themselves, than if the revision be delayed till spring.

Contemplated alterations in any part of the garden should also be determined upon now, and actly noted down ; and they may be proceeded with as soon as leisure permits. Works of this nd should never be passed over till the spring months, when so many operations are crowding on the attention. Besides, if completed early, the marks of them will be so much the sooner literated.

All the beds should be cleared that contain tender plants, which are now either quite stroyed, or so far decayed as to be no longer objects of beauty ; unless, as in the case of the ahlia, where the tubers are unripe, when the tops, if at all living, may be suffered to stand at ast another month, to assist in their maturation.

But although it is time to clear the beds of those plants which have been their ornament in mmer and autumn, we by no means intend that the beds should be left unadorned through the inter. Immediately after they are cleared, and the soil has been newly pointed over, fresh ants should be brought from the reserve ground to lend some attraction through the winter. hese must of course be dwarf-growing, and very hardy evergreen shrubs, such as the *Vaccinium tis idæa, Berberis aquifolium,* Minorca Box, and dwarf Heaths. For a more copious list and her information upon the winter decoration of the flower-garden, the reader is referred to ol. xi. p. 252.

It is frequently difficult to procure stakes for tying up plants, in sufficient abundance. Hence is the more needful to be careful to prevent them from decaying. As soon as they are no nger wanted in the ground they should be taken up, cleaned, and carefully laid by in some dry ed. It is a good plan to char the bottoms before they are stuck into the ground—it will pre- rve them from rotting.

The lawn should be cleared of falling leaves, either every day, or at least two or three times every week. Some people leave this till all the leaves have dropped, which, besides being a slovenly practice, is highly injurious to the appearance of a lawn. The leaves are beaten in amongst the grass by every shower that falls, and so render it yellow, tender, and unsightly.

Whatever tender plants intended to be preserved, are yet left in the out-door department, should be immediately transferred to some place of protection, for we must expect frosts to increase in severity as the season advances. Those plants also which have been merely arranged under temporary security, should now be arranged as they are to remain through the winter. Such plants as Petunias, Verbenas, &c., that require a moderate degree of moisture in the soil during the dull months, will be benefited by being plunged to the rim of the pot in ashes or saw-dust, to reduce the extent of evaporation from the soil, and the consequent necessity for frequent waterings. Plants of a more succulent nature should, on the contrary, be set upon a wooden stage or floor, and will generally be most economically preserved in a greenhouse or vinery, upon some dry shelf within a short distance of the glass.

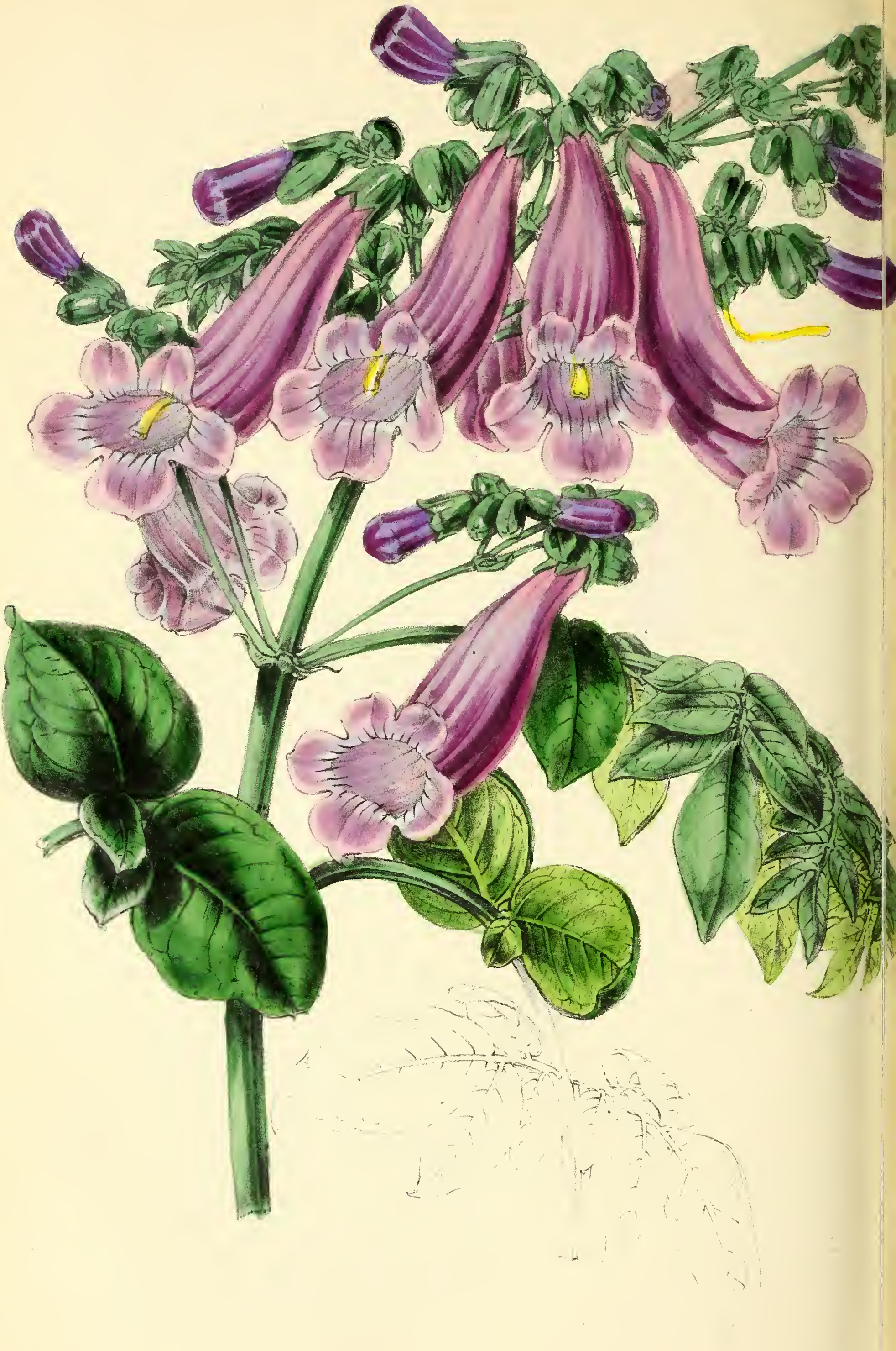
Plants which lose part, or the whole, of their branches through the severity of the frost, and shoot up again from the bottom in spring, should have their roots carefully covered with some protective substance, such as dried ferns, well fastened down, dry peat-mould in places where it can be procured, decayed leaves, or the husks and spears of barley. The last-mentioned materials become so closely matted together after the first smart rain, as to be capable of throwing off succeeding showers, and thus keep the roots of the plants dry, and uninjured by cold. There is little chance of preserving delicate plants through winter, in an open border, unless the ground be well drained, and the soil open enough to allow any overabundance of moisture to filter away. Any not quite hardy plant that it may be desirable to preserve entirely, may be covered with canvas or matting, stretched upon some lightly-constructed framework, observing that the protection should be kept off at all times when the temperature is not absolutely at, or below, the freezing point. It will be useful as a shade on a sunny morning succeeding a frosty night.

A general re-arrangement of the plants in the greenhouse will be indispensable, in order to have each placed in the most favourable station for standing the winter. All the hard-wooded plants, such as Cape Heaths, and the generality of New Holland plants, should be placed by themselves, apart from those of a softer and more succulent nature. This will be found of considerable advantage to the waterer ; and the plants will be less liable to receive too much or too little. Deciduous plants, moreover, may be set apart in some corner, or upon a shelf, as they will scarcely be ornamental, or at least, appropriate, where everything is designed to speak as much as possible of summer gaiety ; and as they will not require much water, they are best by themselves. And by doing so, it will give more room for those which really need it. Each plant ought to have sufficient room for its branches, without interfering with those of its neighbour, so that it may enjoy light and air freely. The maturity of all growing shoots must be hastened by ventilating the house with some freedom, at all favourable opportunities. Instead of closing very early in the afternoon, a little air should always be admitted till the evening.

The stove should undergo a similar examination and arrangement ; and as the plants in the lower part, both of this house and the greenhouse, should be as much exposed to light as possible, all shades may be thrown aside, and the climbers on the roof trimmed, so that they may not darken the interior.

Many of the most showy Orchidaceous plants will now be in flower. Those that are quite at rest should be kept by themselves, and all should receive a diminished supply of water ; shade may also be dispensed with here till another season.

In mild weather, trees, both evergreen and deciduous, may be planted ; so also beds of herbaceous plants may be formed, by transplanting from seed beds, or by dividing old roots that are grown too large. Some of the best Hyacinth bulbs should be selected now to flower in pots and glasses : the Hyacinth pot made by Mr. Hunt is an excellent article for this purpose. Most kinds of bulbs may now be planted in beds in the open air. Chrysanthemums should be covered. Mignonette may be sown in boxes, and a few other annuals to flower in spring. Everything must be kept perfectly clean in the houses.



S Holden, del. & Lith.

Jacaranda tomentosa

JACARÁNDA TOMENTÒSA.

(Tomentose Jacaranda.)

Class.
DIDYNAMIA.

Order.
ANGIOSPERMIA.

Natural Order.
BIGNONIĀCEÆ.

Generic Character. — *Calyx* campanulate, five-thed; rarely tubular, truncate, entire. *Corolla* ular at the base, very much dilated above, campalate, ventricose beneath, limb bilabiate, five-lobed. *mens* four, didynamous, with a fifth longer sterile ment, which is villously bearded at top. *Anthers* -lobed in most of the species, with an obsolete rudint of another lobe, rarely two-lobed, with the lobes ial and diverging. *Stigma* bilamellate. *Capsule* ad, compressed, two-celled; valves thick, ligneous, sepiment contrary to the valves, placentiferous on h sides. *Seeds* flat, transverse, with foliaceouslyged edges, outer testa coriaceous, rugosely plicate.

Specific Character.—*Plant*, a tree, sometimes growing several feet in height. *Bark* grey. *Leaves* a span long, bipinnate, with three to five pairs of pinnæ, and an odd one; leaflets ovate or elliptic, acute or acuminated, unequal, tomentose in the young state, and beneath in the adult state. *Panicles* small, terminal, tomentose. *Peduncles* one to three-flowered. *Calyx* with ovate, acute teeth. *Corolla* silky, violaceous, with a widened throat. *Anthers* two-lobed, lobes equal. *Capsule* oval-orbicular.

Synonyme.—*J. pubescens*.

The genus *Jacaranda* is composed of a few species, valuable for their handsome iage and splendid flowers. They all originate in South America, where they m trees, sometimes of large size—most of them occasionally acquiring an itude of from twenty to forty feet. In our stoves they are more diminutive; d, with a little extra attention and suitable course of treatment, specimens not ceeding the dimensions of an ordinary *Pelargonium* are induced to develope pious panicles of their trumpet-formed flowers.

From the rest of the family the present is distinguished immediately by its very similar leaves. Other species resemble the fine pinnate-leaved Mimosas in the m and elegance of their foliage; but this approaches more nearly to some of the comas (*T. capensis*). Beyond this, it is recognised by the botanist, when in wer, from the less prominent though not less important departure from the m of its associates, discovered in the anthers; the rest having but one lobe and rudiments of a second, whilst the present has two lobes equally perfect.

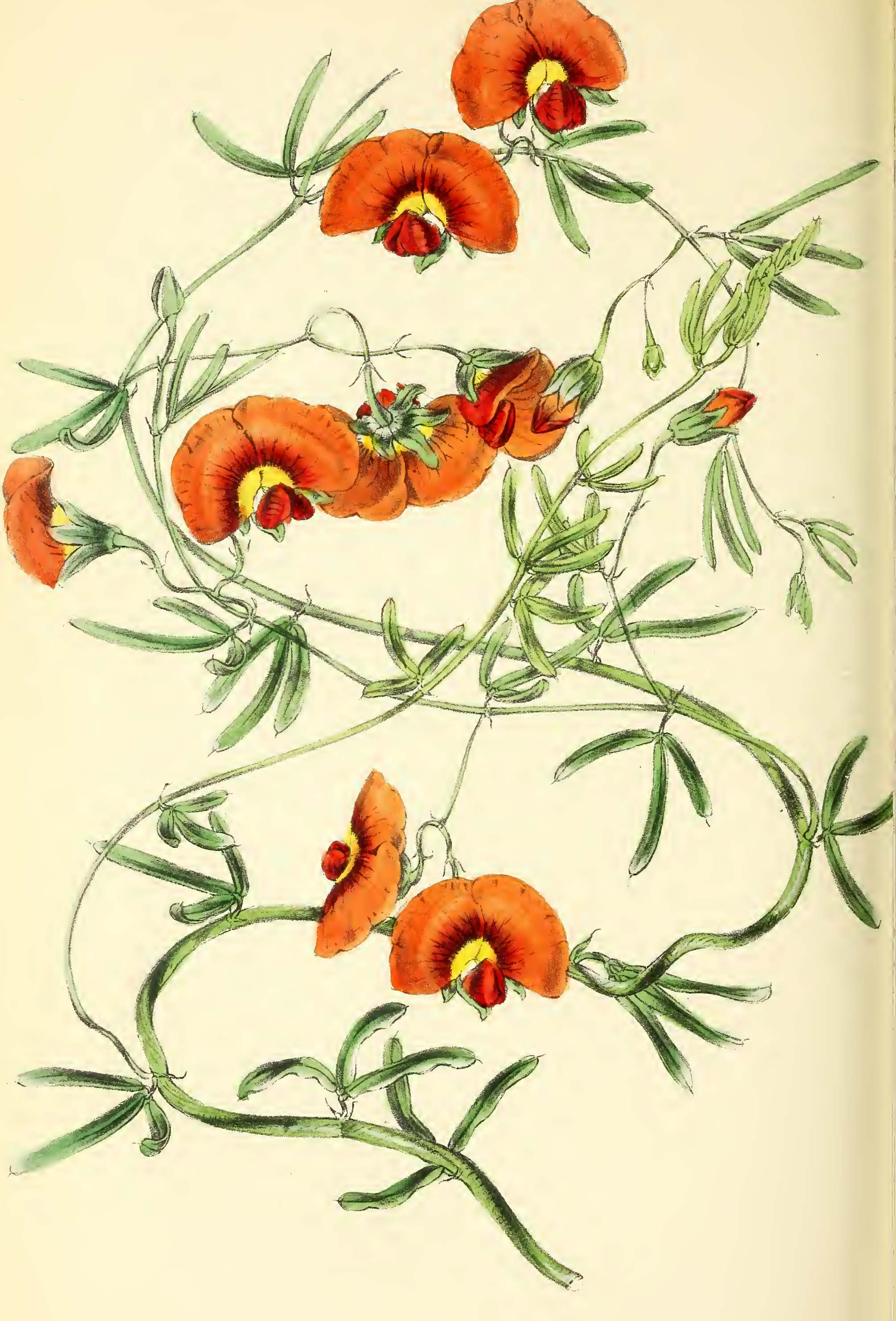
It was imported a few years ago by Messrs. Knight and Perry, under the ecific title of *Bignonia Mauritiensis*. This would indicate an African extraction; t it is most evidently an inadvertent error, as the species had previously been eived in this country from Brazil. We learn, moreover, from the "Botanical gister," that a specimen reared from seeds, gathered in Mexico by Sir Thomas rdy, flowered at Messrs. Whitley and Osborne's nursery in the summer of 1827.

Our embellishment represents a cluster of flowers produced on a small plant at Mr. Knight's exotic nursery, in September, 1842.

It appears somewhat strange that an impression should exist that this, and a host of other really splendid plants nearly allied to it, although occasionally exhibiting their magnificent character with seeming freedom, are difficult to manage, and that they should be seldom seen investing our stoves and greenhouses with their flowery treasures. The mere *idea of difficulty* itself should be incentive sufficient to promote their more general cultivation, with the view of overcoming it; and in the present improved state of floriculture we cannot doubt but, like the Heath tribe, they will be found to grow well and blossom profusely, and with certainty.

Flowering specimens of the present kind may be had in a dwarf state, by propagating from the upper shoots of an aged tree, and submitting the young plants to a moderate bottom-heat in a low house or pit, during the spring months supplying them at the same time with a moist atmosphere, sufficient pot-room and nutritive soil, to support growth of medium strength. Specimens that have once flowered require to be severely pruned before they are again incited to grow.

In the specific name we have an allusion to the downy appearance of the foliage and young growths.



S. Holden, del & Lith

Gompholobium versicolor,

var. caulibus purpureis.

GOMPHOLÒBIUM VERSÍCOLOR, *caulibus purpureis.*

(Purple-stemmed changeable club-pod)

Class.
DIADELPHIA.

Order.
DECANDRIA.

Natural Order.
LEGUMINOSÆ.

Generic Character. — *Calyx* five-parted, nearly equal. *Carina* of two concrete petals. *Vexillum* broad. *Stigma* simple. *Legume* many-seeded, nearly spherical, very blunt.—*Don's "Gardening and Botany."*

Specific Character. — *Plant* an upright, rather twiggy, small shrub, with sub-angular stems and branches, glabrous. *Leaves* nearly sessile, trifoliate; leaflets linear, rather broadly so in the older parts of the plant, acute, almost apiculate at the extremity, margins slightly recurved, costate, but with no evident nerves or veins. *Racemes* loose, few (two and three) flowered. *Pedicels* furnished with minute bracteoles. *Flowers* large, handsome. *Calyx* of five deep oblong-acute segments. *Keel* glabrous.

Variety.—*Stem* purple.

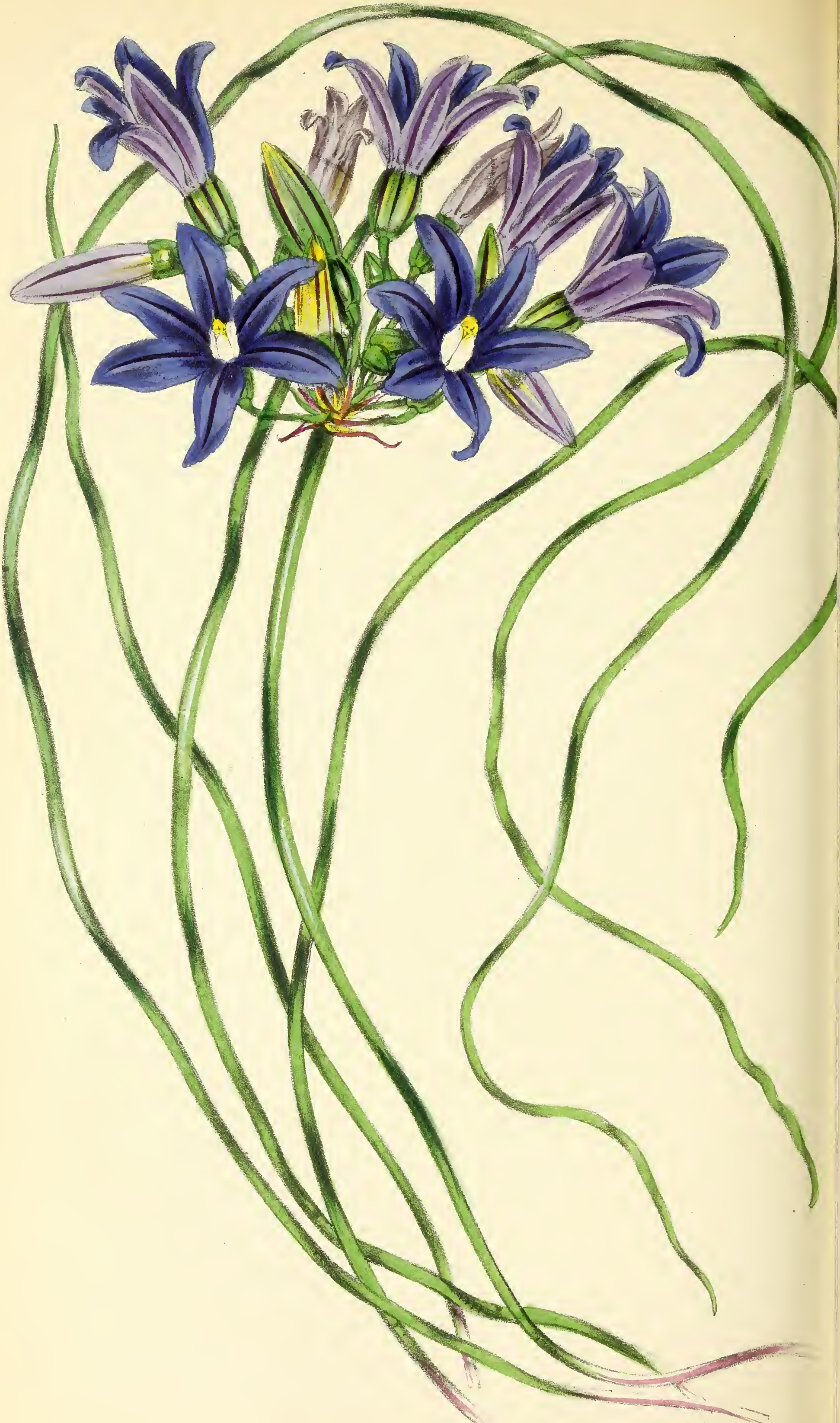
Those who are accustomed to view the many beautiful specimens of horticultural skill which grace the summer exhibitions near the metropolis, must have observed frequently amongst them plants of several species of this handsome genus of greenhouse exotics, and especially the *G. polymorphum.* That species is now a well-known favourite, on account of its elegant slender shoots and plenteous blooming. The present, however, is a much more vigorous plant, and appears to have equal claims upon our attention in its large and handsome blossoms.

The *G. versicolor*, figured in the "Botanical Register," is a stout, strong-growing plant, from which our variety only differs in having a purple stem. We understand, however, that a slender-growing plant, similar in habit to the *G. polymorphum*, with yellowish flowers mottled with red, has crept into the nurseries under the name of *G. versicolor*, and is now circulating as such.

Our drawing was taken from a specimen obligingly sent to us from Exeter by Messrs. Lucombe, Pince, and Co., who imported it from New Holland.

One recommendation, which most cultivators will appreciate, is its rapid growth compared with that of other species. It is well known that slow-growing plants are more difficult to preserve in health than those which lengthen with greater rapidity. Sometimes, however, it occurs that the former flower more copiously in proportion to the space they occupy. But the present plant developes flowers with as much freedom as its branches extend; and it is consequently one of the most appropriate kinds for those who are obliged to cultivate New Holland plants with a miscellaneous greenhouse collection.

It is easily cultivated in the ordinary mixture of turfy heath-mould, silver sand, and a small addition of loam. The best mode of supporting it is upon a cylindrical trellis; the shoots must be trained down sufficiently to cover the lower part of the trellis and the edge of the pot; and they ought to be allowed to hang more loosely than we generally find them upon the upper portion. Close training never looks well upon a pot-plant. Cuttings take root without much difficulty under a bell-glass, in sand.



S. Holden, del & Lith

Brodiæa grandiflora.

BRODIÆA GRANDIFLÒRA.

(Large-flowering Brodiæa.)

Class.
TRIANDRIA.

Order.
MONOGYNIA.

Natural Order.
LILIACEÆ.

GENERIC CHARACTER.—*Perianth* complanate, six-left, persistent; with three scales at the throat, oppoite the exterior segments, sometimes anther-bearing. *cales* three, fleshy, hypogynous. *Stamens* three, inerted in the throat, alternate with the scales. *Anthers* wo-lobed at base. *Style* continuous, with the ovary wl-shaped. *Stigma* three-lobed. *Capsule* clothed, with he perianth, obovate, pedicellate, three-celled; cells hree-valved. *Seeds* four or five in a cell, black, obovate, triated, peltate; *testa* membranous. *Chalaza* depressed.

SPECIFIC CHARACTER.—*Root* small, bulbous. *Leaves* radical, spreading, linear, acuminate, channelled. *Scape* erect, terete, slender, about a foot high. *Flowers* umbellate, corymbose, pedunculate; scales short, few, scarious. *Peduncles* usually in six or seven pairs. *Perianth* a delicate blue; tube six-streaked; limb spreading, longer; segments oblong-linear, somewhat obtuse, the outer ones narrower. *Scales* ligulate.

SYNONYME.—*Hookeria coronària.*

To many of our readers we have no doubt that the present is a very familiar lant: nevertheless, it is one of many of its class that we could point to, which eceive much less attention than their merits deserve, and which are perhaps less avoured, because they are suffered to blossom singly, instead of in extensive and ather dense masses. An individual plant of *Brodiæa grandiflora* would certainly ave a somewhat meagre appearance on a lawn, with its narrow, scarce leaves and ong flower-stems; but plant a number of bulbs closely in a bed, and they will form n their flowering time (July and August) a sheet of the most delicate blue. Another plant adapted for the same kind of treatment, and not much unlike the resent in general appearance, is the *Triteleìa láxa*, a very beautiful bulb, but not o easily procured as our subject. The appearance of the species might also be mproved by planting some small, quick-growing creeper in the same bed, to cover he soil with green foliage.

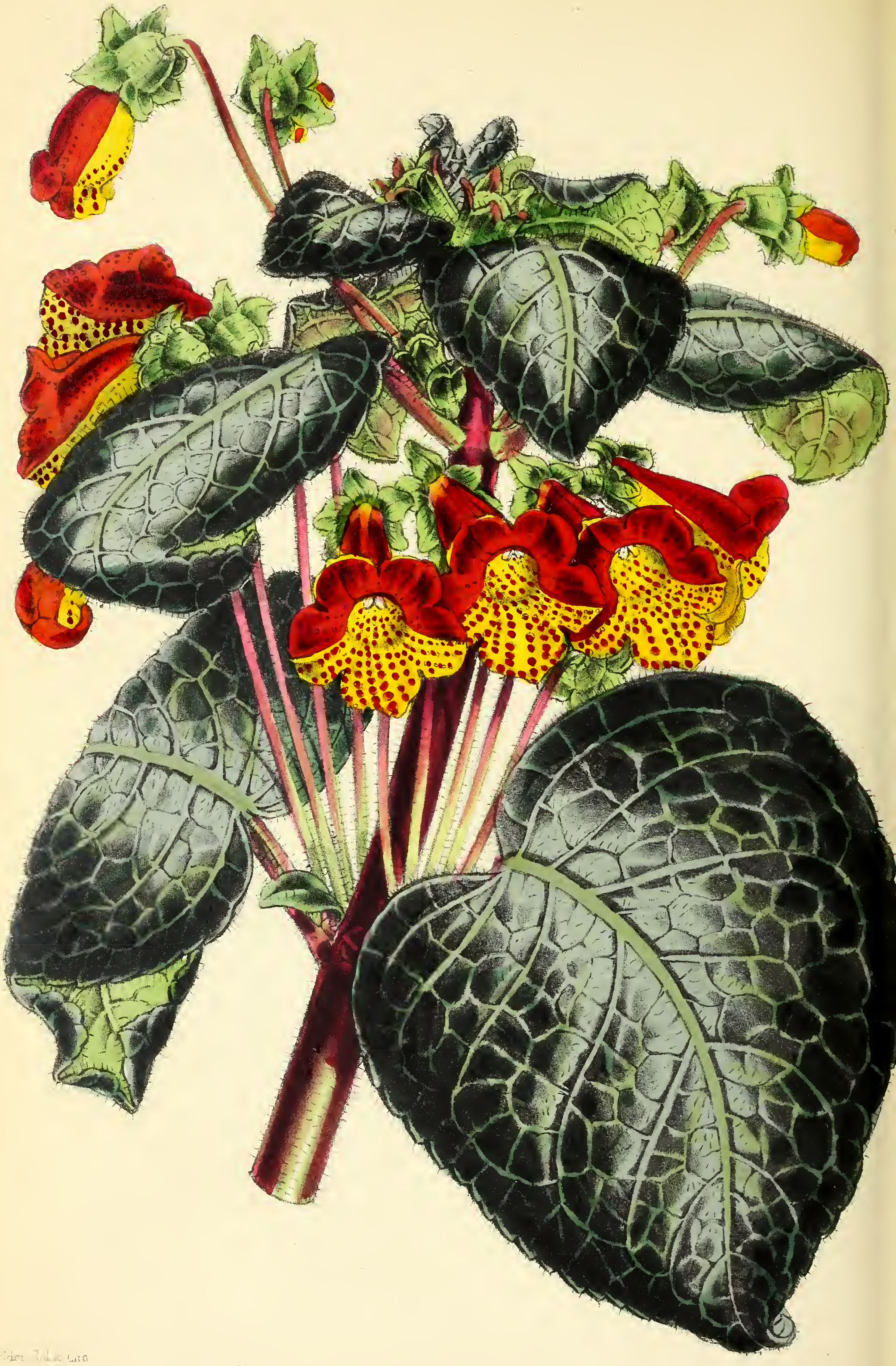
Bulbous plants of this description are admirable subjects for ornamenting the pen patches amongst rockwork. These places might easily be rendered more gay with such flowers, and without, as we conceive, any offence to taste, if only udiciously and not too lavishly disposed.

The *B. grandiflora* appears to have been first introduced about the close of the ast century; but perhaps the greater portion of the plants now in the country have proceeded from later importations. It was detected by Mr. Douglas during his botanical travels in North-West America, and transmitted to the Horticultural

Society in 1826. The specimen represented in our plate was kindly supplied last summer by Mr. Groom, of Clapham Rise, in whose nursery the species is extensively cultivated.

Its cultivation is very simple, as the bulbs are perfectly hardy in a moderately dry soil: hence they may either be taken up in autumn to replant in spring, or left to winter in the open ground, at pleasure. A wet springy soil, however, is apt to rot them when dormant, and during summer they prefer a warm and light earth. They will likewise receive benefit from the slight shade afforded by planting amongst rocks.

The genus was established by Smith, and named in compliment to James Brodie, of Brodie, in Scotland, a gentleman attached to scientific pursuits.



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Achimenes picta.

ACHIMÉNES PÍCTA.

(The Painted Achimenes.)

Class.
DIDYNAMIA.

Order.
ANGIOSPERMIA.

Natural Order.
GESNERACEÆ.

Generic Character.—*Calyx* with its tube adnate to e ovary; limb five-parted; lobes lanceolate. *Corolla* bularly funnel-shaped, often swollen at the base; mb five-cleft; lobes sub-equal, sub-rotund. *Stamens* ur, didynamous; anthers not cohering. *Rudiments* the *fifth stamen* situated below the base of the rolla. *Nectary* glandular, in a small ring. *Style* ightly thickened towards the stigma, oblique, or with vo separate lobes. *Capsule* nearly two-celled, two-lved: placentas parietal, sub-sessile.

Specific Character.—*Roots* consisting of numerous ongated scaly tubers. *Stems* erect, not much branched, covered, as also is every part of the plant, with rather long hairs, herbaceous, succulent. *Leaves* opposite, and ternately verticillate; petioles ovate-cordate, serrate, rich velvetty green, mottled and reticulated with white. *Flowers* on peduncles longer than the leaves, drooping, moderately large. *Calyx* almost entirely free: tube obconical, or turbinate: segments oblong-ovate, spreading. *Corolla* full yellow, with red above, within streaked and dotted with red; tube funnel-shaped above: limb spreading, two upper lobes the smallest. *Ovary* ovate, hairy, with five oblong, fleshy glands at the base.

Nothing can be more appropriate than the specific title of this truly charming lant. The rich velvetty green foliage traversed with its reticulations and ottlings of pale greenish white, or the beautifully streaked and spotted flowers, ould each be a sufficient ground for naming it "the painted *Achimenes*." It is ertainly one of the finest of this magnificent family.

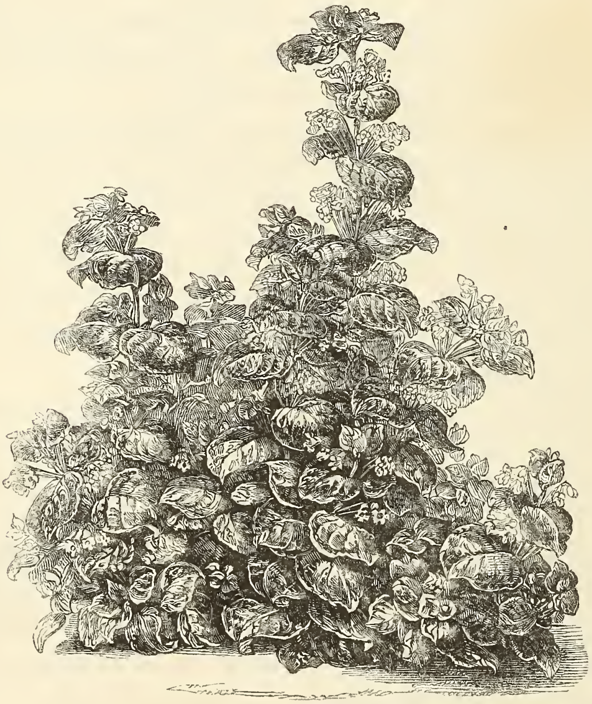
Mexico is its native country, and it is one amongst the many superb things ntroduced from that country by the Horticultural Society, through their active nd zealous collector, Mr. Hartweg. That gentleman discovered it in his rambles n the wooded heights to the east of Guaduas, and gives the following account of t in the "Horticultural Transactions:"—"In its native *habitat* this *Achimenes* refers dry rocky ground, in places not much shaded, where it scarcely attains ore than five inches in height, seldom producing above two or three of its finely ottled bright orange flowers upon a stem."

From this account it appears that our garden specimens far exceed the wild nes both in vigour and abundance of flowers. It is no uncommon thing to see andsome plants two or three feet high, which, instead of merely a solitary blossom, ave frequently from five to seven or eight from the axil of each leaf. In such ases a short peduncle usually springs from the axil, and after reaching to half an nch or an inch in length, branches off at the top into several pedicels, which are early erect, each carrying a single blossom. Last spring we measured a stem rom which several vigorous branches had issued at a short distance from the foot, hich extended upwards of four feet and a half from the surface of the soil to the top of the plant, and with upwards of forty expanded flowers upon it. This wa produced by Mr. Duncan, gardener to — Campbell, Esq., Lamb Abbey, Kent Several magnificent specimens have also been grown at Brooklands, the seat o J. Cook, Esq., by Mr. W. P. Ayres, from one of which our embellishment wa sketched.

According to Mr. Hartweg's account in the "Horticultural Transactions," thi is not the only species of *Achimenes* upon which cultivation has produced a improved appearance. The flowers of *A. longiflora* and *A. pedunculata* are said t be more abundant and nearly double the size in our plant-houses. The latte grows in its native haunts with a slender stem about one foot high, having a fe leaves at the top, and seldom bearing more than two flowers.

The most successful cultivators start the tubers in a little bottom-heat, an during their growth place them in a warm greenhouse or pit, where a moist an partially shaded atmosphere is preserved. In their torpid state they only requir to be kept dry.

We must not conclude our remarks without mentioning the facility with which this species may be had in bloom at every season of the year, by delaying or forcing the growth of the tubers, or rearing plants from leaves at different periods.



INVESTIGATION OF SOILS.

As the period of torpor and repose is now established, and plants, with few exceptions, should be in a state of rest, it will not be irrelevant to the objects of floriculture to devote a few pages to the consideration of those discoveries which give promise of great improvement in that art. In our late notice of Guano, some idea was conveyed of the extreme caution required to avoid danger from the application of an agent so comprehensive and powerful. We are thus led further to insist upon the necessity which exists of becoming experimentally acquainted with all the media that gardeners employ in their several operations of culture: for to the present hour, as in agriculture, so in the floral departments, men act upon mere empirical routine, ignorant of principles, of the causes producing effects, and of the mode of correcting errors of misapplication.

As a qualifier of what we assert, it must be avowed that plants, like animals, are liable to disease,—they are subjects of mortality, and, at the best, can only vegetate on, and progress to the close of their existence. We see an unhealthy subject, and wonder at the cause; recourse is had to change of soil and modification of treatment; but without effect; it is weak—it cannot be nourished—languishes, and dies. Thus disease may prevail without the fault of the gardener; and so it will ever be. But this unhealthy condition is not at all connected with the inquiry which claims present attention.

A very few years have elapsed since it became apparent that to understand the proper treatment of any vegetable, the substances which enter into its organic structure ought to be discovered; and some progress has already been made in this important branch of physiology.

Pending the course of experiments which will, at least, detect those inorganic elements that withstand the action of fire, and therefore are traceable to the soil in which the plant grows, we must be content to ascertain the constituents of the soil itself, and this we can effect with a degree of accuracy that could scarcely have been anticipated, by the ablest chemist, even at the period when Sir Humphrey Davy detailed his process of analysis before the Board of Agriculture.

If by tracing, and assuring himself of this fact the gardener acquire something like a correct knowledge of the earths he employs, and which experience has shown to produce the highest condition, he gains a great deal, and thereby converts mere conjecture into certainty.

Every gardener and florist of large practice is quite aware that, besides the multifarious varieties of loam, there are the earths called *mould*, which have their origin in vegetable matter; and also a considerable number of soils, vaguely styled *peat*, all adapted to the habits of the hair-rooted plants, but differing materially in quality and texture. Now, by the processes of analytic chemistry, the components of all these soils can be eliminated and fairly exposed to view with a minuteness of precision which must ultimately lead to certain and fixed principles. It would, however, be too much to expect a practical gardener to attempt to operate for himself; he must take much upon trust;—but, nevertheless, it would be always advantageous to become acquainted with the theory of the analyst, and with the absolute facts which he can adduce.

Formerly, in analysing a loam, the chemist was contented to determine its general earthy constituents, to search for and declare the amount of the rough sand, fine silex, alumina, carbonate of lime, and oxide of iron, which it might contain; he sometimes alluded to the gypsum and phosphate of lime which were occasionally traceable, and he could ascertain the weight of the organic substances that were combined with the earthy matters. But now, we are required to enter into an accuracy of detail concerning the *neutral salts*, and soluble extractive acids that are produced by simple boiling in pure distilled water. A perfect loam, like the one described by Dr. Ure, in his article on Analysis of soil, (vol. v. part ii., of the Royal Agricultural Journal,) and which "produced every variety of crop most abundantly," and with only one manuring for fifty years, is not generally at command; but every gardener may so modify his stores of turfy loam, (and these are notoriously required,) as to become representatives of such a soil, provided he comprehend the nature of the elements named, and the operation of tests by which they are to be detected.

The table given by Dr. Ure is the following. It is capable of being imitated without much difficulty; and if a large mass were properly prepared, it would furnish a store of loam that, for pot-culture, might last for many years.

1 Silica, or fine flinty earth	56	0	per cent.
2 Alumina	8	0	
3 Oxide of Iron	5	5	
4 Carbonate of lime (chalk)	9	0	
5 Sub-phosphate of lime (bone earth)	0	4	
6 Carbonate of Magnesia	0	5	
7 Organic matter, chiefly vegetable mould	6	6	
8 Moisture separable by steam heat	11	3	
9 Do. separable at red-heat	2	7	
	100	0	

besides traces of muriate of soda, (common salt,) muriate of lime, and ammonia $\frac{17}{100}$ of a part, equivalent to 1 grain in 600 of the soil. This ammonia was obtained from the azotised organic matter of the loam, in which *Guano*, when pure, is so exceedingly rich.

The tests required are caustic alkali, and nitric, or muriatic acid, to separate the silica; caustic ammonia for the alumina, oxide of iron, and phosphate of lime; oxalate of ammonia for the carbonate of lime; and carbonate of soda, or phosphate of soda, for the magnesia.

The muriates of soda and of lime are detected by nitrate of silver, which carries down the muriatic acid: and the ammonia is developed by a separate process, upon a fresh portion of soil, by means of caustic soda and quick lime.

All soils contain iron; but in some it exists in the lower state of oxidation, called protoxide, and then the tint of the loam is of a pale or greyish-drab; in others, the red, purple, or rich brown hue indicates its saturation with oxygen.

These conditions can be ascertained by the test commonly termed prussiate of potassa, added to a solution of the soil in muriatic acid. When the iron exists as a protoxide, it appears as a pale bluish precipitate; but the peroxide yields the deep tint of Prussian blue, which, in fact, is produced by the action of the Prussiate.

This test is most delicate, and may be relied on as an indicator of iron when in acid or neutral solutions of soil; but it is not now used as the precipitant in analysis.

Peat—that is, properly speaking, heath or moor-soil—contains some iron, generally in the lowest state of combination with oxygen; and this is readily accounted for by the presence of black vegetable matter as one of the chief components of such earths. It may not be required to analyse these soils by chemical tests, because combustion at a red heat in an open capsule or evaporating basin will suffice to carry off the vegetable organic matter, leaving the bulk of white sand—so abundant in such soils—remaining in the vessel, combined with the oxide of iron. But the investigation by fire should *always* be made, as thereby the proportions of the sand and organic substances that exist in different samples will be determined. A curious and instructive series of experiments can be made with heath-soils, by digesting an ounce of each in half a pint of boiling rain-water, adding to one sample a few grains of salt of tartar, or soda; to another, a few drops of caustic ammonia: a deepening of tint will immediately take place, owing to the action of the alkalies upon the humic extractive of the soils. The infusion being strained off through a piece of coarse muslin, will be found, in some instances, of the colour of porter; but by the addition of a little quick lime, or even of strong lime-water, this tint will disappear, the humic matter being most strongly attracted by the lime, uniting with it as *humate of lime*, and falling as an insoluble precipitate. These experiments teach us the true use of lime in land over glutted with vegetable matter; it acts as a specific corrective, by combining with the redundant matters which poison the soil of a garden, and render bog and peat-lands quite barren.

Leaf-mould—always rejecting that of the laurel—is a good substitute for heath-soil, provided it be mixed with abundance of pure white, *silicious* sand. Tested chemically by alkalies, it will yield colouring matter, which is acted upon and precipitated by lime, as in the case above alluded to. But there is one circumstance which must not be overlooked. Leaves of trees that grow in loams contain definite proportions of lime, alkalies, iron, and other of the earths soluble in water. Now, heath-mould contains little else than sand and vegetable matter reduced from the plants which itself produces; and therefore leaf-mould becomes inappropriate to the heath-tribes, which cannot generally flourish in richer soils.

In analysing heath and leaf-moulds, the latter will be found far the more complicated, but both are richer in humic substances than loams; while the inorganic constituents of the latter, existing in the ashes after ignition, are very different from the simple white sand of the former; and this circumstance, when fairly proved by experiment, will satisfy the inquiring gardener that he cannot in all cases substitute the one for the other; though practice will clearly point out which of the two must be applicable to individual plants.

There is one substance that cannot be deemed either earth or manure, but which offers many advantages to pot-culture, and now begins to be appreciated. *Charcoal* is this substance: it is quite insoluble; it changes not, and is not liable to decay or putrefactive fermentation; but it absorbs ammoniacal and other gases to the extent of many times its own bulk, becomes also saturated with water, and retains moisture pertinaciously; hence, it forms the best sort of drainage, supplying the root with aqueous and gaseous matter, suitable to their habits, yet never producing change or decay. It is at once the most innocuous and useful o negative appliances, and may doubtless be added to soils in small fragments, as a preventive of aridity.

It is decomposed by ignition, and then is converted into carbonic acid gas this gas is also developed constantly during the slow decay of vegetable remains and thus becomes a fertile source of nutriment to the roots, and perhaps to the whole plant through the pores of the leaves.

From what has been stated, we hope that some idea will be formed of the compound nature of soils, and of the necessity which exists for the rigid investigation of every species of plant in order to obtain correct views of cultivation.

It is now known, that, besides the earthy matters, soils contain four, if no five species of vegetable organic substances soluble in water, and the three alkalies these are with certainty derived naturally from vegetable decaying matter, though in varying quantities; they are termed by chemists, crenic, and apocrenic, humic geic, and ulmic acids: but if there be a deficiency of *inorganic* elements, the material wanting must be confined by art, otherwise a plant which requires chalk cannot thrive in earth destitute of or ill-supplied with that earth; another which thrives in soil containing phosphate of lime or soda will languish under opposite circumstances.

These facts are decisive of the utility of chemical appliances, and they also account for the constant complaint which we hear of *loam*, and of the difficulty which one gardener meets with in cultivating some tribes that his neighbour or acquaintance raises in luxuriant perfection; there are causes for all things, and some of these chemistry has discovered, and continues still to discover.

We dwell more particularly upon the necessity of unremitting, strict researches nasmuch as pending experiments have proved the entire absence of some common nd most essential ingredients in earths, apparently of very rich quality; and so it appens everywhere; for appearances, especially of texture and colour, go for ery little, when success may depend upon the presence or absence of a *two undredth* part of a phosphate, muriate, or oxalate, which cannot be traced by he most delicate mechanic investigation. Man cannot command the seasons, the bsence or presence of solar light or heat: but he can detect and regulate the ondition of inorganic elements.

While we are upon this subject, we wish to make known that our respected riend, Mr. Towers, of Maidenhead, Berks, having had considerable experience in he processes of chemical analysis, will undertake the operation for any gentleman r culturist who seeks to proceed with certainty in a matter of such moment. His charges will only be such as will fairly compensate the expense of apparatus, nd chemical tests, and time and labour bestowed.

THE OLEANDER.

We cannot but regret to see, in the present day of floricultural improvement, so many of the most beautiful gems of Flora's kingdom permitted to share the fate of hose whose blossoms are deficient in attractive features; if they are not, like the atter, quite discarded, they are often left, without any solicitude for their welfare, o linger through a starving existence. We know not why it is that such noble lowers as those of the Neriums, interesting as much for their exquisite fragrance as or the plenitude and lovely hue of their blossoms, are so slightingly regarded. Under good management, indeed, these plants may vie with the Rose—the Queen of flowers—in interesting qualities.

Members of this genus have been found in various parts of the world. Loureiro speaks of the Oleander as growing in China, Cochin-China, and many other places n Asia. The "Hortus Malabaricus" mentions one, as the Tsjovanna-Areli, which s considered to be identical with the double-flowered *splendens*, now common in collections. They have been discovered in the South of Europe, on the eastern shores of the Mediterranean, in the West Indian Islands, and on the coasts of Africa, thus adorning with their stately forms and specious blossoms some district n each of the four quarters of the globe.

Whilst writing thus, we may observe, that a variety with Carnation-like flowers (in the way of Mr. Lane's *Rayanot,* see vol. xi. p. 53), is by no means a novelty in the family. We find mention made of a Nerium *floribus ex albo et roseo variegatis*, in "Miller's Gardener's Dictionary," which was discovered by Dr. Tournefort, in the Levant, and was considered a scarce plant in Europe a century ago, when Miller wrote. As that plant is said to produce a white flower striped with red, it may not, however, be the same variety as the one introduc by Mr. Lane, in which the sanguineous hue preponderates. It may be wort inquiring, therefore, whether such a plant as that described by Miller still exis either in the country denoted as producing it, or in European collections.

The opinions of botanists regarding the different Neriums which have bee imported to this country are much at variance, as to whether they ought to considered species or merely varieties; and the confusion of synonymes which h arisen through this has tended much to increase the difficulty of discovering whic kind an author really intends by any of them.

It matters little, in a cultural point of view, whether they are strictly varieti or species: they have gained the popular name of Oleander in common, and would be difficult now to limit its signification to any one of them. They are a beautiful plants, inhabiting similar stations, and requiring the same kind of trea ment. Even in their natural haunts they are remarkable for their magnificenc A writer on the plants which inhabit the coast of Africa says, " In the summe season, when all the more delicate plants have been dried up beneath the scorchin sun, there is still the OLEANDER, with its brilliant bunches of rosy flowers, b which are traced from afar the courses of the rivers, on the banks of which loves to dwell, and those humid spots which, from accidental circumstances, bein never dried up, are then a kind of vegetable Oases."

The conclusions which a cultivator must unavoidably deduce from thes observations upon its natural habitat are palpable, and well confirmed in practic We usually find a rich soil in the vicinity of rivers—and a rich loamy earth prove the best for the culture of the *Nerium*. But it is chiefly because it delight in, and in fact demands, a degree of moisture that would be pernicious t many other individuals, that it is met with in its most flourishing state upon th banks of streams, where its vigorous roots can penetrate ooze and mire to th water's edge, and find a copious fund of fluid constantly flowing gently aroun them; and it is this fondness or necessity of the plant for an abundant provision o water, that has induced the grower to place beneath the pots capacious feeders ful of water, or the drainings from the dunghill, so soon as the roots have passe throughout the soil in the pot in which it is intended the plant should bloom.

Again, they are found fully exposed to a scorching sun; and under artificia management there is no point more important than a good command of light. A abundant supply of water without strong light would be as ruinous as a blazin sun with an inefficient supply of moisture. It is true we cannot rule the sky an chase away the clouds, but we may prevent other things from obscuring the ligh of the sun; we may do away with the shade of trees, walls, and canvass, an keep the glass perfectly clean. Those plants constantly immured in a gloomy shady situation, produce flowers that are deficient in colour, less redolent with thei pleasant cinnamon odour, and more fugacious than those disclosed under a bright sun. We find also that a temperature gradually reduced from that of a moderatel eated stove to the warmth of an ordinary greenhouse, as the flowers advance wards maturity, enhances their colour, and prolongs the period of their duration; ut a sudden transition from the one to the other imposes a check, which prevents em from expanding, or if expanded at the time, hastens their decay.

Specimens, however, planted in a border where a greenhouse temperature is aintained, will flower beautifully, if the roots are nearly deluged with water in e hot summer months; or, at least, so abundantly furnished with it as to revent any of the soil in the vicinity of the roots from becoming dry. Many eople content themselves with bestowing a very superficial sprinkling, which is tirely taken up by the soil within two inches of the surface, whilst that beneath ecomes completely void of moisture, and hence the roots which ramble amongst it e comparatively in a state of inaction and uselessness, being incapable of drawing utrition for the support of the plant. One frequent consequence of the soil aching this state in the course of the plant's growth is, that the upper branches e apt to wither up suddenly, as if blasted;—in the morning they may be quite ealthy, and at night sapless, and no after-treatment can recover them. The ranches of old trees, moreover, are liable to decay in the greenhouse during the inter months, when they should be at rest, if there is much dampness either at e root or upon the foliage. This decay or canker commences in a small speck n the bark, and gradually extends along the surface, and penetrates in depth, ll further circulation of sap is stayed.

Old specimens frequently thrive and flower tolerably well in pots in a greenouse or conservatory, when they are not exposed to a cold air, especially in the lay of a current. In this case it will be necessary to give them frequent and opious draughts of liquid manure in a clear state, during the growing and owering seasons.

Another feature in the management of the Oleander is the production of dwarf looming specimens. These are easily procured by making cuttings (especially in utumn) from the upper shoots; such cuttings, when rooted and encouraged in e forcing-house in Spring, will develope large trusses of flower when not more han a foot or eighteen inches high, and thus form pretty objects for the greenouse or drawing-room. A collection of such plants of the white, variegated, and ouble-red flowered kinds, would make a pleasing variety, even in the absence of ther things to mix amongst them.

Before we quit the subject, we must view the Oleander in another light—e mean as a plant for exhibition.

We believe it has seldom or never made its appearance at any of the great ondon Floral Exhibitions. It is true these exhibitions take place at a somehat early period for the flowers of the Oleander generally; but there is nothing xtraordinary in having them to flower by the middle of July: and when we ok at the many proofs of skill and untiring assiduity which one of these *fêtes* resents, the idea of difficulty vanishes. On such occasions a few specimens of these "plants of the stream" would make a gorgeous spectacle; but the natural upright, tree-like form of at least some of them, should be converted into that a somewhat spreading bush. To do this, it will be necessary to use the kn with more freedom than it commonly is on this family. An old specimen, head down to near the bottom of the stem, will soon push out a sufficient number shoots for the purpose; and old plants, in their ordinary state, are far from bei the ornamental objects they might and would be if better provided with shoo foliage, and flowers, in the lower parts. In general, they exhibit only a lo naked stem with a few branches, and imperfectly grown, and yellow-colour leaves at the summit; so that it is utterly impossible that they can flower, c at least, that they acquire sufficient organizable matter to bring a large truss flowers to perfection, and continue to present a healthy aspect. Besides t superior look which the bushy specimen has, the long stem being entirely got r of, the sap has no longer to pass through and support such a long channel wood before it reaches and contributes to the enlargement of leaves and flowe But perhaps, for exhibition, a young plant would produce the best specime The lower branches must of course be bent outwards, and the upper ones stopp back now and then, as they are developed, to keep them from growing too hig to encourage the protrusion of more shoots, and to throw additional vigour in those beneath, which are necessarily placed in a more recumbent position.

Perhaps the best situation for plants intended for this purpose would be a p where they might be stationed near the glass, with perfect command over hea moisture, and ventilation. By this plan the wood would be much short jointed, than if the plants were set in a stove on an ordinary stage or platfor and the cultivator would more easily regulate the period of blossoming.

The splendid appearance of these plants, and the degree of neglect with whi they are often regarded, must be our plea for the length to which this paper extended. Our principal aim has been to draw attention to them: neverthele there is sufficient in the general observations embodied to point out the nature the cultivation they ought to receive.

HINTS FOR THE FLOWER-GARDEN.

When we reflect that the Flower-Garden is one of the principal sources attraction in the pleasure-ground during the summer months, and the mo prominent and chief feature in all grounds of limited extent, we cannot but fe surprise at the very prevalent neglect of some of those things most essential to i perfect appearance, which are so conspicuously observable both in the formation an management.

In the formation of flower-gardens people are too apt to be led away by th ere contemplation of the general effect and arrangement, from bestowing the roper consideration and attention on adapting them for the objects intended to be ltivated in them ; forgetting that on this depends in a large measure the capacity accomplish the general design of the whole. Yet such is actually the case. It ould be thought egregious folly in a mechanic contriving a piece of machinery r a definite purpose, were he to attend only to the construction of its parts of the quired size and proportion, and to its outward adornment ; and to pay no regard the materials of which it was formed, their suitability and durableness, or to roviding the springs and other minutiæ by which alone it could be set in motion, nd made capable of accomplishing the proposed end : and so it is with the flower-arden,—unless the minor and individual arrangements are based upon the rinciples of cultivation, however specious and perfect the general design may e, it is certain to be defeated or defective in its result.

In laying out a flower-garden, then, beyond the consideration and judgment quired to preserve harmony with the general garden scene, and to render the round most eligible for displaying its floral garnishments to the utmost advantage, is in an equal degree essential to provide those conditions which most contribute the health and fertility of the plants. It ought not to be expected, though it ommonly is, that the gardener who has all the evils of previous mismanagement the construction of the flower-garden to contend with, should be able to compete the culture of plants with those to whom every facility is furnished to emedy the natural defects of the situation. The question then naturally arises, —what are the points to which attention is principally requisite ? And in rder to answer this we must first glance at a few circumstances connected ith the subject and essential to its elucidation.

And first, by far the largest number of the plants used for the parterre at the resent day are natives of a much warmer and more equable climate than we have this country, and are correspondingly more liable to suffer injury from the udden variations to which they are exposed in the open garden.

Keeping this before us, it will be evident that the first thing to which it necessary to direct attention is the nature of the ground and locality in eference to warmth and humidity. It is well-known that a wet soil is always cold one; and on this account we should prefer (when choice is given), a gentle eclivity, rather than a dead level, as a site for the flower-garden, because of the reater facility which it affords for draining completely. This, however, cannot lways be had; nevertheless, it is an indispensable point to secure a situation ufficiently elevated to enable water to escape readily during long-continued rains. nless this can be done it is useless to attempt growing even the most ordinary alf-hardy border plants, as no dependence whatever can be placed on realising any uccess.

But supposing a situation sufficiently elevated has been selected, it is essential lso, to prevent the garden from receiving moisture from the springs in higher

grounds. Such cases often exist ; they are, however, easily remedied by passing
drain along the upper side to intercept the flow. Now, this is a matter
much importance, especially in a wet season ; although it is one seldom looked t
Other drains may carry the water away freely, but the water in its passage rol
the ground of a portion of its heat. A drain on the upper side prevents more w
from entering the soil than what falls immediately upon it ; and must therefo
assist largely in keeping up its temperature.

The necessity for forming other drains will of course depend on the natu
of the soil and subsoil. In a clayey ground they will be indispensable, and
will likewise be needful to adopt some means of ameliorating the mechanic
texture of the earth, so as to render it sufficiently pervious to air and moistur
to enable it to carry a healthy vegetation. Sand, or the scrapings from a fli
road, vegetable and coal ashes, are amongst the best substances that can be use
And where they can be obtained in sufficient plenty, light loamy earth, decayin
leaves, and heath-soil, or the refuse from charring stacks will be found highl
beneficial.

To promote the utility of these preparatives in the general improvement
the soil, particular care should be employed in forming the beds severally. A
least a foot of loose stones, covered with brick and lime rubbish, or other sul
stance capable of furthering drainage, should be laid in the bottom of each be
The advantage of this is greater than most people imagine. Nothing can b
more injurious to tender plants in the open border than an accumulation of wate
about their roots : it produces a coldness in the soil, which, in spring especiall
is so far mischievous that it frequently effects the destruction of the plant, an
generally causes an inertness, which is not recovered from for some time. More
over, although, as the season advances, and the soil gains a little warmth, th
plants may recover, yet they will then imbibe so much ichorous matter that the
will be forced into crude growth, producing nothing but gross stems and leave
which, on the recurrence of a long period of rainy weather, often assume a yello
aspect. These are, perhaps, extreme cases ; but all who have had much experienc
in the outdoor culture of tender plants, are well aware that degrees of the sam
evil are constantly witnessed in retentive soils and confined humid places. A
familiar instances, we need only mention the gross plethoric growths of th
common varieties of *Petunia* and *Pelargonium*, particularly the scarlet kinds. I
is, indeed, as necessary to provide a quantity of broken porous materials t
carry off superabundant water from the beds of a flower-garden, as it is t
employ drainage in the bottoms of flower-pots ; or, if possible, it is more so, fo
we may regulate the supply of water to the pots, but we cannot cover our flower
beds from the rain.

There is less danger of greenhouse plants suffering from drought in th
borders in summer, than through an excess of humidity. The only period a
which even an excessive dryness proves injurious to any considerable extent is i

ring, before the roots have taken good hold of the soil, or the stems cover the rface. Well-foliaged shoots are a great means of preventing evaporation after ey have once covered the soil, and hence they render an excess of moisture still ore hurtful. In our climate, moreover, the occurrence of long-protracted idity is less prevalent than wet and cloudy weather. We are rarely visited ith such seasons as the spring of 1844; and when they do occur, it is an easier atter to shade our choice things, or employ some means of preventing eva- oration (which is always preferable to repeated waterings) during their con- nuance, than it is to be ready with a protection to ward off every shower. ome cultivators lessen evaporation by mulching their borders, others by covering e soil immediately about the plants with small pieces of slate; we have also en shallow beds of scarlet Pelargoniums, and similar strong-growing plants, overed for the season with small round whitish pebbles from the sea-shore, for e same purpose; and others again, cover the whole bed with mats for a few ours in the middle of clear sunny days, and during dry winds, till the plants re firmly established. Upon the whole, then, we have little to fear from dry soil, compared with the evils that arise from one surcharged with moisture.

We are fully persuaded, too, that the borders of the flower-garden are enerally made both too deep and of richer materials than the plants demand. The proneness of half-hardy plants to assume a redundancy of vigour in the pen garden rather requires some reduction of the means by which it is engen- ered, than to increase stimulatives to further it. Flowers are the main thing ooked for, and we only want a sufficient growth to promote their development, nd to cover the bed with shoots and foliage. The effects of a deep soil are merely to allure the roots away from the surface, and gorge the entire system with water, which cannot be assimilated, and is hence opposed to the furtherance f a floriferous state. Some plants, as the *Tropæolum tuberosum*, *Nierembergia linearis*, Scarlet Pelargoniums, *Lobelia gracilis* and other small-growing species, *Mesembryanthemum tricolor*, and the hardy dwarf Gentians, require but a very light covering of soil, if a strata of lime-rubbish, charcoal, coal-ashes, broken bricks, and similar bodies is laid beneath. At Chatsworth many plants have xisted throughout the winter in the raised architectural beds in the Italian garden, whilst the same kinds have perished in the adjacent borders.

Another thing which ought to be studied is the contrivance of screens on the most exposed sides, particularly when the situation is subject to rough winds. By recommending shelter, however, we must not be interpreted to include shade, nor yet to advise a confined situation. Few conditions can be less favourable than a close stagnant atmosphere in a low place. The only shelter necessary is merely sufficient to break the force of the strong sweeping winds which mutilate tender things so excessively. In a moist place, in the bottom of a valley, a considerable play of air is useful in carrying off the noxious vapours and moisture which there accumulate in the atmosphere ; whilst if the garden be situated o high or sloping ground, a screen of greater density will be essential.

To promote a healthy vegetation, and abundance of bloom, a flower-garde should decidedly have an aspect laying well towards the sun. Most border plants when not confined at the root, require as much light as possible, especially as th autumn approaches. But there are some exceptions : for instance, the lovel little *Nemophila insignis* revels in a partially shaded spot. With regard to th exposure to the light, there are some particulars in the after-management of th plants in the open air which deserve attention. We allude chiefly to the usuall crowded state of the shoots of many kinds, during the latter months of summer whereby the leaves are prevented from receiving their full share of solar influence ; as, for example, the whole race of Pelargonia. If a little timely pruning and occasional thinning out were adopted, not only would the appearance of th bed be improved, but the quantity of flowers would be increased, and their colou improved. Other plants, again, require stopping back, to keep them from struggling too far, and to further the development of lateral shoots ; and with others, as the Phloxes and some species of *Salvia*, the same ends will be answere by fastening the shoots to the ground with small pegs.

It will be seen, that throughout the present article we have expressly had i view that portion of the pleasure-ground especially styled the flower-garden, an devoted almost entirely to the culture of half-hardy plants in beds, each containing a single kind. Many of the points inculcated are applicable, either wholly, or t a partial extent, to other departments ; and some of the plants which unavoidabl come under the general description here given, may require some modification i the management ; but these are comparatively few in number, and do not affect the general question.

REVIEW.

Practical hints on the culture and general management of Alpine or Rock plants. By JAMES LOTHIAN. W. H. LIZARS, Edinburgh.

NOT long ago we endeavoured to draw the attention of our readers to a little-valued, but very interesting, class of plants—Lichens and Mosses. The minuteness of the majority, and the singularity of many (such as the *Nidularia campanulata*), of these plants, together with the rich appearance of some of them when growing in large patches, render them well worth care and culture, wherever there is an appropriate situation for them. But they have no richly coloured flowers to allure and dazzle the eye. The little book before us treats upon another set of generally minute plants, exhibiting flowers of all hues, and various forms. Perhaps some of our readers will find such plants more interesting. Certainly there is something extremely pleasing in their dwarf habit and diminutive proportions ; and the elegance and delicacy of their several parts will well repay the closest scrutiny. These properties suit them for some detached plot, where planted by themselves, they may form a kind of fairy garden. From the greater number being naturally found growing in mountainous or alpine situations, they receive the common name of Alpines. Many of them are indigenous to our own island, but as they are nly to be seen in places seldom traversed, and from the smallness of their parts perhaps, often scape observation amongst vegetable forms of greater magnitude, there can be no objection to ingling them amongst those imported from other countries.

From the rocky and elevated stations which these plants naturally occupy, they have long een a troublesome tribe to the culturist, and even now many collections betray the lack of some ssential to their well-being. Various remarks have been published from time to time in the ardening newspapers and other periodicals, but we believe Mr. Lothian is the first who has ttempted a separate treatise upon them. His work contains copious directions for their eatment, both in pots and when planted out upon rock-work; and with this guide in their ands, few people, who can command a situation at all favourable, can fail to manage them ccessfully.

We make the following extract from the author's remarks upon autumn treatment, partly as specimen, and partly because it points chiefly to one of the principal mistakes generally committed in the management of Alpines :—" Towards the close of September, any of the more rare nd delicate Alpines may be placed within the frame, as the weather will now be coming cold nd boisterous. Avoid, however, putting the sashes on, as this would only tend to cause damp, nd, perhaps, induce the plants to make additional soft growths, which would promote decay and ause damp, so much to be guarded against in winter.

" About the middle of October, according to the weather, the whole may be gone over, cleaned oroughly of weeds and any decayed leaves, and the soil stirred a little about the plants, which re then to be placed in the frame, and plunged in coal ashes as before alluded to. But the shes need not yet be put on until there is an appearance of frost, when this may be done, king them off every good day at noon, for the greater part of the day."

The culturist who imagines that these plants must be hardy enough to need no protection in inter, simply because in their wild state they inhabit elevated situations where the atmosphere keen and cold even in summer, commits a great error. Though the temperature of the air in inter may be constantly much below 32°, yet it must be remembered that these little plants re protected from it by the hand of Nature. They lie beneath a covering of snow, that prevents hem from being exposed to a temperature low enough to harm them, and not only this, but hey are also shielded from the fury of the mountain storm. It cannot, then, be reasonably expected that such plants can bear with impunity to be exposed to wind, and hail, and rain, and ll the rigour and changes of an ordinary winter. Mr. Lothian's observations on this point will e read with profit.

Another point which we consider a very general cause of failure, is the neglect of a timely nd sufficient potting. To make fine specimens they require to be repotted early, in order to ive them as long a season as possible to grow in. If this is put off, till growth has proceeded ome way, the further progress of the plant is retarded, whilst, if done at the commencement, it proceeds steadily without anything to interrupt it, and the specimen consequently ttains greater vigour and perfection. Copious directions on this head will be found in the ork under notice.

We must refer our readers to the work itself for further intelligence. We may just mention hat there is a list of Alpine plants appended, which will be useful to those desirous of forming collection; and we trust that such collections will become more general.

FLORICULTURAL NOTICES.

NEW OR BEAUTIFUL PLANTS FIGURED IN THE LEADING BOTANICAL PERIODICALS FOR OCTOBER.

Be′rberis actinaca′ntha. A small hardy evergreen bush, adapted for rockwork, growing hree or four feet in height, and blossoming plenteously in May and June. It is " apparently ommon in the neighbourhood of Valparaiso, whence it has been brought by all collectors of hilian plants. It is not, however, a plant of the coast, but inhabits the first range of the Cordilleras. It derives its name from the broad ray-like divisions of the spines, which are sometimes very remarkable. But in this respect it varies according to the circumstances under which it grows. The leaves, too, vary in form from roundish-ovate to ovate, and even subcordate. They always have a hard, dry, curled appearance, as if the species were accustomed to a rigorous climate." It is cultivated in the garden of the Horticultural Society. The English name is the Ray-spined Berbery. *Bot. Reg.*, 55.

Boldo'a fra'grans. A small greenhouse tree or shrub, yielding a highly aromatic odour. "It has round, grey, slightly downy branches, and roundish ovate evergreen opposite leaves, placed on short stalks, and studded with hard points, which give them a very rough surface. The flowers are diœcious, pale greenish-white, in little terminal panicles, each branch of which is rather regularly three-parted. In this country the male only is known. The fruit, which is only known in a dried state, is a little drupe, about as large as a haw, apparently black, and extremely fragrant. It contains a single seed, suspended from near the apex of the cell. In Chili the plant is much valued; its wood forms a charcoal preferred by smiths to all others, and the aromatic fruit is eaten by the natives." It is said to grow from fifteen to twenty-five feet high. It succeeds in sandy loam and peat with ordinary greenhouse treatment. The leaves are apt to be scorched if exposed to the sun. *Bot. Reg.*, 57.

Callia'ndra Twe'ediei. "An elegant shrub belonging to a genus of Mimoseæ, distinguished by the great length and frequently rich red colour of the stamens, whence the appropriate *Calliandra* of Bentham (*callos*, beautiful, and *aner-andros*, the stamen). Sixty species are enumerated by Mr. Bentham in the London Journal of Botany, all inhabitants of the American continent. They have, Mr. Bentham observes, the corolla of *Albizzia*, the stamens of an *Inga*, and a pod different from that of any other genus; the valves of the pod rolling back elastically in a very remarkable manner. The present species is a native of Rio Grande, and Rio Jaqury, in South Brazil, where it was detected by the indefatigable botanist whose name it bears; found also by Mr. Sellow." Plants raised by Mr. Jennings from seeds sent to Lord Derby, at Knowsley, produced flowers last March: since then the species has also flowered in the Royal Botanic Gardens of Kew. It requires a stove heat, and to be kept pretty moist. According to Tweedie, it is a small tree, or in mountainous places a low shrub; the plants at Kew seem disposed to trail with their branches. *Bot. Mag.*, 4188. [Possibly the branches would have a less attenuated growth, if the plants were placed in a somewhat lower temperature, and kept near the glass roof. The *Inga pulcherrima* figured by us some time ago, ranks under this genus.]

Exoste'ma longiflo'rum. This plant was received at Kew from Mr. Makoy, of Liege, under the name here adopted. It is evidently the same plant with the *Cinchona longiflora* figured by Lambert, although some trifling discrepancies exist. "In Mr. Lambert's representation the leaves are narrower, the flowers rather smaller, and the segments of the calyx and corolla are too short, probably occasioned by being drawn from an imperfect specimen in the Herbarium of Aublet. Lambert gives Guiana as the native country of the species; while De Candolle, on the authority of Richards, says it is indigenous to St. Domingo. Be that as it may, it constitutes a very pretty shrub, flowering freely and copiously, and the blossoms are fragrant and remarkable, not only for their great length, but for their change of colour, at first pure white, gradually becoming red. *Exostema* is a genus separated from *Cinchona*, chiefly on account of its exserted stamens, whence the name *exo*, without, beyond, and *stemma*, a crown. *E. longiflorum* blossoms in June, and continues for some weeks in beauty." It is a low much branched shrub, about a foot and a half high, with lanceolate sharply acuminated leaves, tapering into a very short footstalk, and of a texture between coriaceous and membranaceous. The flowers with their long slender corolla-tube, are more singular than showy. *Bot. Mag.*, 4186. [This plant has been long cultivated in the London nurseries under the erroneous title of *Oxyanthus longiflorus.*]

Echinoca'ctus pectini'ferus. "It is the case," writes Sir W. J. Hooker, "with this small, but showy, *Echinocactus*, as with too many others in our collection; descriptions can give no adequate idea of the varied forms of these plants, especially as regards the nature of the costæ, the spines, and their arrangement in the areolæ, of the flowers, &c. The present species flowered in the Royal Gardens of Kew in April, 1845, and was received from San Luis, Mexico, among many fine Cacteæ sent by Mr. Staines. So uncouth a looking trunk would hardly be expected to give birth to such large and handsome flowers.'' The only previous description of this curious species is by Professor Lemaire, and he was ignorant of the blossoms. The plants at Kew are about four inches high, of an ovate form, rather suddenly contracted above the middle, and depressed at the top, " deeply costate, with about twenty prominent costæ, which are obtuse and somewhat mammillose at the margins ; in the centre of each mammilla is an oblong, white, woolly, close-packed areola, with numerous rather short spines, or aculei, whose arrangement is very peculiar. They are of two kinds ; the greater number, twenty and more, are about three lines long, and spread out almost horizontally in two rows, closely placed in a pectinated manner, whitish or yellowish-white, tipped with red or brown, almost united at their base, the middle ones the longest, between these two rows are a few smaller ones." Two or three flowers spring from near the top of the same crown; their size is rather large for the plant, and the colour of the petals is of a sulphury hue at the bottom, and a delicate rose-colour in the upper part. *Bot. Mag.*, 4190.

Franci'scea acumina'ta. This handsome Brazilian shrub is well known in nurseries and gardens under the title of *F.Pohliana*—a name not known in botanical works. It is a desirable stove species, of a much branched habit, with rather small, oblong, acuminate foliage, and bearing its flowers freely, even on very small plants, in conspicuous clusters. *Bot Mag.* 4189.

Gongo'ra trunca'ta. " Whatever opinion," Dr. Lindley observes, " may be entertained respecting the specific distinction of other Gongoras, no one can doubt that this is very different from all that have been previously discovered. It is a Mexican species, introduced from Mexico by Mr. Rucker, who received it from Mr. Linden, in 1840. We do not find anything peculiar in the pseudo-bulbs or foliage ; the characters of the species reside exclusively in the flowers, which are pale straw-colour, with some brownish-purple speckles, and a yellow lip. Before expansion they are almost of the form of a bean, which is owing to their sepals being so blunt, that when flattened, they are nearly half-oblong. The lip has no speckles at all, and looks as if varnished. We do not admire the scent, which is quite peculiar." *Bot. Reg.* 56.

Habra'nthus co'ncolor. The main difference between Zephyranths and Habranths, which are nearly related, " is found in the interior of the flower, where the Habranths have on the outside of the stamens a small cup, composed of a membrane or of certain toothings or scales, which are deficient in the Zephyranths, or at least hardly discoverable. In habit, the one-flowered Habranths are the same as the Zephyranths. In the present species the cup consists of a membranous ring cut into irregular toothings or lacerations, and here and there slit down to the base. The flowers, although pale green, are very pretty, and form a lively ornament of the greenhouse or cold frame, in the early spring. Mr. Hartweg found it in pastures near the city of Leon, in Mexico, whence he sent its bulbs to the Horticultural Society," where it flowered last April. *Bot. Reg.* 54.

Schombu'rgkia undula'ta. A year ago Dr. Lindley regarded this as the finest of the Schomburgkias, but is now obliged to change his opinion in favour of *S. rosea*, a new discovery by Linden, and said to be far beyond this in beauty. *S. undulata* was found by Linden " in December, 1842, in New Grenada, at the height of 2,400 feet above the sea, on the rocks near Pandi, a place which, in his herbarium, he calls—' The natural bridge of Icononzo.' The wild specimens have about twenty flowers in a head, and the plant will therefore become much more beautiful as the cultivated specimens get into better health. Their colour alone distinguishes them from both *S. crispa* and *marginata*, and the form of the lip from *S. tibicinis*." Concerning *S. rosea*, Mr. Linden writes, " This magnificent species is found on rocks, on the northern slope of the Sierra Nevada de Santa Martha. Bracts, peduncles, and lip, are all of a bright rose-colour ; the petals are deep red. It was met with 5,000 feet above the sea, between the villages of S. Antonio and S. Miguel, on the territory of the Auruhuacos Indians." *Bot. Reg.* 53.

Tacso'nia molli'ssima. A greenhouse plant from New Grenada, allied to *T. tripartita.* It is said that the flowers drop off before they expand if planted in the stove. The blossoms are large, and of a handsome rose-colour. *Bot. Mag.* 4187.

OPERATIONS FOR NOVEMBER.

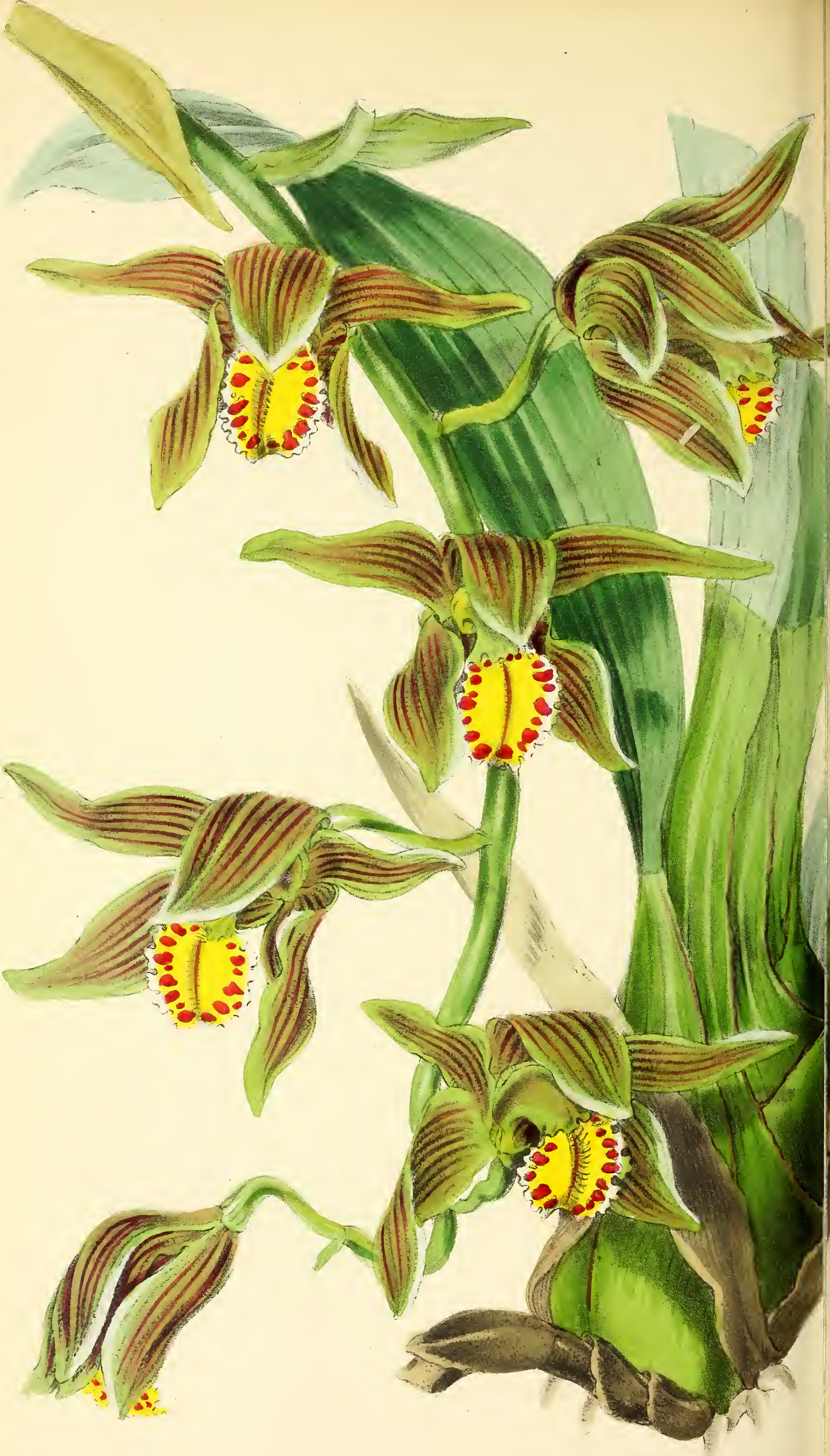
THE extreme dulness of the late summer and autumn having, to some extent, incapacitate tender plants for bearing a gloomy winter, it is more than usually essential that the cultivato should do all in his power to guard against the ordinary dampness of November ; especially wit those plants that have newly-formed shoots, such as the half-hardy things lately multiplied, an the tribes whose branches or leaves are at all disposed to be succulent. Mildew, in its variou forms, will, as an almost necessary consequence of the wet weather, be beginning to appear o many descriptions of plants ; and the parts thus affected must be immediately cut away, or, wher this is impracticable, the spots should be carefully rubbed or brushed away. The house or pit too, in which such indications appear, should be aired as much as possible whenever even an hour' dryness in the outer atmosphere occurs, and a little fire heat must be cautiously applied in th event of such opportunities not arising.

But, as we have often before enjoined, precautionary measures which prevent the accumulatio of dampness are of more value than any remedy which can be applied when the evil already exists The utmost attention must, therefore, be given to see that the glazing of the roof is perfectl water-tight, that there are no dead leaves or other materials lying about the house, or under th stages, so as to collect or create moisture, and that the plants get only just water enough t supply their necessities, without leaving them the chance of becoming injured by excess. It wil be of great service also to remove all decaying matter about the plants, and keep dying leave plucked away, directly these begin to appear.

Light and air must now be the first points for consideration in plant-houses. They should b furnished with the fullest possible copiousness, when the state of the atmosphere without admits. Fires should by no means be lighted unless they become actually necessary ; repose being now chiefly to be sought, and heat only being of use to preserve a due amount of dryness, or to arres frost. Chrysanthemums, Chinese Primroses, and all those flowering plants which demand a goo quantity of water at the present time, had better be kept in a house by themselves, where ther is convenience for it.

As this is the great month for planting bulbs, the operation should be at once attended to. I should be borne in mind that most kinds of bulbs require an enriched soil, and that either leaf-mould or decayed and well-pulverised manure is an excellent ingredient for their compost. This i particularly the case with Hyacinths, which, when planted in a tolerably rich soil, make a splendid bed for the flower-garden. Gladioluses also flourish far better when they are planted in a bed o border of nicely prepared compost ; and Lilies will not succeed except in an enriched earth. In speaking of planting bulbs and corms, out of doors, we may mention also that Crocuses, Snowdrops, the dwarfer kinds of Narcissus, and many other things of this class, which are considered almost too common for such purposes, make beautiful masses in the flower-garden during the early spring, if planted in beds.

November is likewise the best month for beginning to plant forest-trees, shrubs, &c., and particularly those which are larger than the common-sized nursery plants : for, by planting them now, they are enabled to get a fair hold of the soil before spring, and are thus better prepared to begin their young growths vigorously and at the proper time. In planting, one of the principal things is to preserve and spread out carefully all the roots, and not to tread them into the ground until after they have been well covered with soil ; nor, even then, to trample about them beyond what is absolutely needful to fix them properly in their places. A very considerable retardment of the plant's progress results from inattention to these trifling circumstances. And no plant can reasonably be expected to flourish which has its roots much mutilated, or cramped into a kind of impervious cell by treading.



S. Holden, del & Lith

Cymbidium giganteum.

CYMBÍDIUM GIGANTÉUM.

(Gigantic Cymbidium.)

Class.
GYNANDRIA.

Order.
MONANDRIA.

Natural Order.
ORCHIDACEÆ.

Generic Character.—*Perianth* coloured. *Sepals* and *petals* nearly equal, free. *Lip* sessile, free, without a spur, concave, sometimes articulated with the base of the column, sometimes slightly connate, undivided or three-lobed. *Column* erect, semi-cylindrical. *Anthers* two-celled. *Pollen-masses* two, often two-lobed at the back.

Specific Character.—*Leaves* narrow, strap-shaped, seven-nerved, thick and tough, distichous. *Scape* nodding, closely covered at the base with loose imbricated striated scales. *Bracts* short, ovate, acute, scaly. *Flowers* rather closed, tesselated, very large. *Sepals* oblong, acute, erect, many-nerved, nearly equal. *Petals* linear-lanceolate, acute, spreading, rather shorter than the sepals. *Lip* oblong, tapering at the base, where it adheres to the column, folded up, three-lobed; lateral lobes entire, flat, and narrow; intermediate lobe crisp, ciliated; disk with two converging ciliated lamellæ, ending in a line of hairs reaching to the point of the lip, and bordered by two distant hairy lines on each side. *Column* clavate, thin-edged, smooth, with a terminal *anther*, which adheres firmly to the back and opens in front.

Synonyme.—*Limodorum longifolium; C. iridioides* (?); not *C. giganteum* of Sweet.

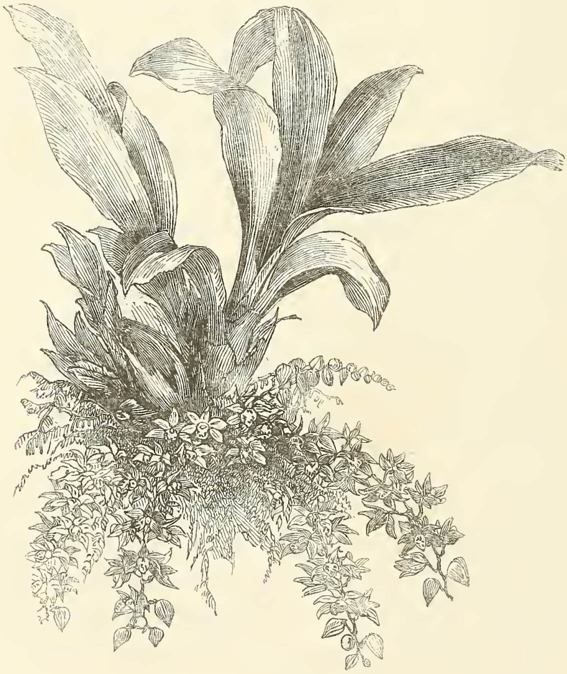
Treating of the plant which forms the subject of the accompanying delineation, Dr. Lindley, in his valuable "Sertum Orchidaceum," writes as follows:—"This is one of the most striking of *Cymbidiums*, and was well named the gigantic, when compared with other known species. It is a native of Nepal and Kamaon, where it was discovered by Dr. Wallich, in the year 1821."

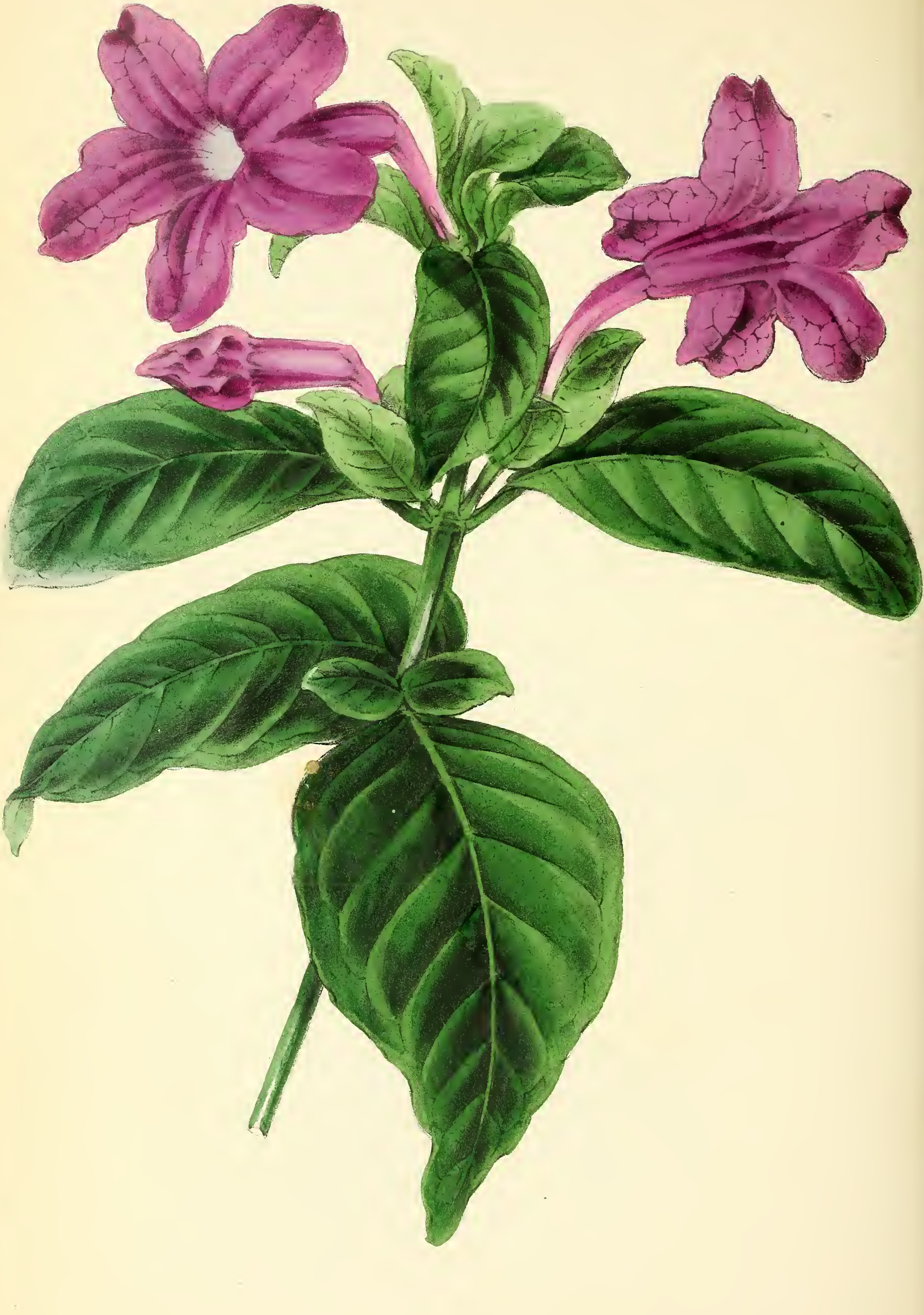
Mr. Gibson, the collector sent out to India some years ago by his Grace the Duke of Devonshire, met with it in great abundance in the thick umbrageous forests at the foot of the Khoseea hills, growing on the trunks of trees, and especially upon those which had begun to evince tokens of decay; the specimens which occupied the hollows of old trees partially filled up with decomposing vegetable matter, always presenting the most luxuriant and healthy appearance. In the same locality, and flourishing under similar conditions, Mr. Gibson also found another species, now cultivated in many collections as *C. giganteum*, with much broader and shorter leaves, and a perfectly erect flowers-pike; and in all its parts inferior to the true *C. giganteum*. The plant named *C. giganteum* by Sweet is the *Cyrtopera gigantea* of Dr. Lindley, and is quite a different thing.

Our plants at Chatsworth were received in 1837, and produced fine nodding spikes of flowers about two feet in length, each supporting about sixteen or eighteen blossoms, in the beginning of November, 1844, from which the drawing was executed. In their wild state they frequently grow somewhat longer, and have always a nodding inclination, and not perfectly erect, as has been represented. The species approaches most nearly in habit to *C. elegans* and *C. Mastersii*; but is much more robust than either of them. The leaves frequently measure upwards of three feet in length, and are more gracefully disposed than those of its two allies. The flowers are well portrayed in the figure, and we have only to add that they constantly exhale a very powerful, but not very agreeable fragrance, resembling that of the common Daffodil.

This, and all other *Cymbidia* of like character, appear to flourish with the greatest vigour planted in pots, in a porous peaty earth, full of fibrous matter; or where peat of a sufficiently open texture cannot be conveniently obtained, it must be rendered so by intermingling with it pieces of decayed wood, charcoal, potsherds, and hypnum moss; for it is the most essential requisite in the soil or other material employed for Cymbidia, and indeed all Orchidaceæ, to admit a free circulation of fluids. Frequent shiftings seem to be hostile to their nature, as we have always found those specimens to succeed most satisfactorily which have been undisturbed at the root for two or three years. The pots should be plunged in a tan-bed, or otherwise supplied with bottom-heat.

Kymbe, a boat, is the origin of the generic appellation, and applies to the form of the lip. The woodcut represents an entire plant.





Holden. del & Lith.

Ruellia lilacina.

RUÉLLIA LILACÌNA.

(Lilac-flowered Ruellia.)

Class.
DIDYNAMIA.

Order.
ANGIOSPERMIA.

Natural Order.
ACANTHĀCEÆ.

Generic Character.—*Calyx* five-parted; lobes equal r sub-equal. *Corolla* hypogynous, funnel-shaped; limb ive-parted; lobes equal, spreading, obtuse. *Stamens* our, inserted in the tube of the corolla, didynamous. *nthers* oblong, two-celled; cells parallel, equal. *Ovary* wo-celled. *Style* simple. *Stigma* oval-shaped, channelled at the back. *Capsule* oblong-quadrangular, wo-celled, six to eight-seeded; cells two-valved; valves eed-bearing. *Seeds* adhering by a thread.

Specific Character.—*Plant* an evergreen shrub. *Branches* herbaceous when young, glabrous. *Leaves* ovate, bluntly acuminate, many-nerved, entire at the margin. *Flowers* axillary, generally two from each axil, sessile. *Calyx* less than two-thirds the length of the corolla, five-cleft; segments subulate, erect, unequal. *Corolla*—tube veiny, slender, very long, funnel-shaped, curved; limb spreading, segments rounded, very obtuse, nearly equal, veined. *Seeds* orbicular, compressed, margined, and ciliated.

Synonyme.—*Justicia glabrata.*

Our subject is not the first of which we have had to record that, of its native ountry we have no direct evidence. It is one of the many plants introduced rom the Continent without any memorandæ to indicate its original clime.

It has been very generally known, and as generally distributed by Nurserynen, as *Justicia glabrata:* the appearance of its leaves will at once account for its aving been specified by such a title.

As it has at present come under our observation, we have found it growing rom eighteen inches to two feet high; the foliage of moderate size, and of a andsome shining dark-green hue.

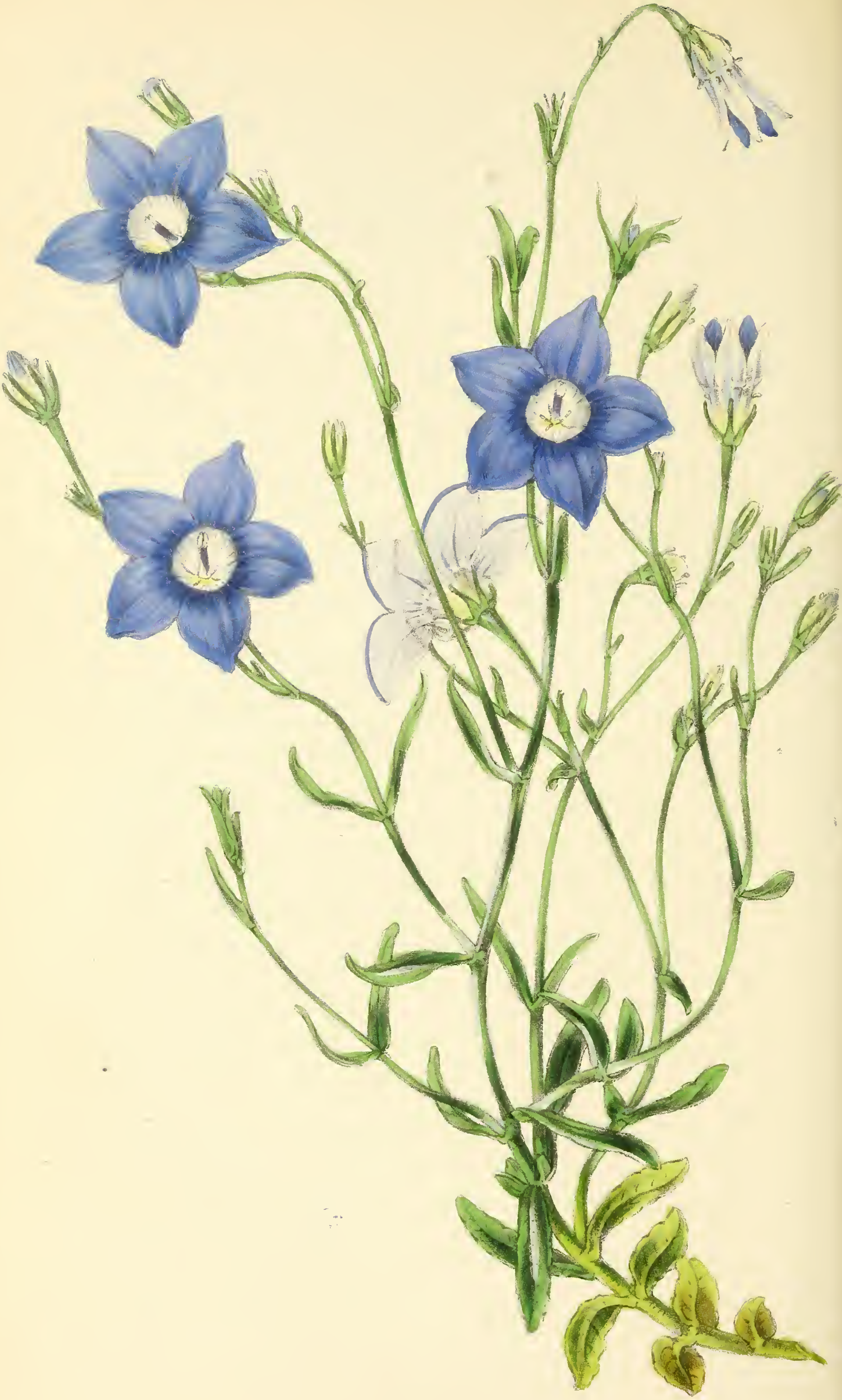
Hitherto we have scarcely seen a well-grown specimen, and we doubt not that f the plant were subjected to a liberal mode of treatment, it would attain to much reater dimensions than those before mentioned. Wherever any degree of attenion has been bestowed upon it, the improvement in the aspect of the plant, and he increased abundance of blossoms, fully justify the conclusions we have come o, and give us some reason to suppose that it may prove freer-flowering than nany have imagined from merely observing it in a stunted condition.

From its winter-flowering capacity it is likely to be useful to those who vish to have a display at that season; and the appearance of its leaves is such as o render it a desirable object, even without the aid of blossoms to enhance its value. In cultivating it, a soil composed of equal portions of loam, peat, and leaf-mould should be employed, allowing plenty of pot-room.

Cuttings are easily induced to strike root when placed in gentle bottom-heat.

The Messrs. Rollisson, with their usual kindness, allowed our drawing to be taken at their Nursery, in the spring of 1844.

The name *Ruellia* is given in compliment to John Ruelle, a French botanist and M.D.



S. Holden del & Lith

Campanula sylvatica.

CAMPÁNULA SYLVÁTICA.

(Wood Bell-flower.)

Class.
PENTANDRIA.

Order.
MONOGYNIA.

Natural Order.
CAMPANULÀCEÆ.

Generic Character.—*Calyx* five-cleft, having the sinuses usually covered by appendages. *Corolla* five-lobed or five-cleft at the apex, usually bell-shaped. *Stamens* five, free; filaments broad at the base, and membranous. *Styles* covered by fascicles of hairs, except at the base; stigmas three to five, filiform. *Ovarium* wholly inferior, three to five-celled. *Capsule* three to five-valved, dehiscing laterally. *Seeds* usually ovate, flattened, sometimes ovoid, and small.—*Don's Gardening and Botany.*

Specific Character.—*Plant* an annual, scabrous from short stiff hairs. *Stem* erect, straight, few-flowered. *Radical leaves* oblong, obovate, tapering downwards. *Cauline leaves* linear, narrow, nearly entire. *Flowers* terminal, on long peduncles, erect. *Calyx*-segments erect, subulate. *Corolla* campanulate, downy, twice the length of the calycine segments, blue.

Synonymes.—*C. stricta ; C. integerrima.*

Everybody knows the *Campanula rotundifolia*, or common Hare-bell, with its elegant drooping violet-blue blossoms, the loveliness of which has been the burden of the poet's song, not only in England, but in most of those continental countries which number it amongst their wild flowers. With that species the interesting little plant, faithfully reflected on the annexed sheet, possesses many marks in common, and is well entitled to occupy a place in the good opinion of cultivators.

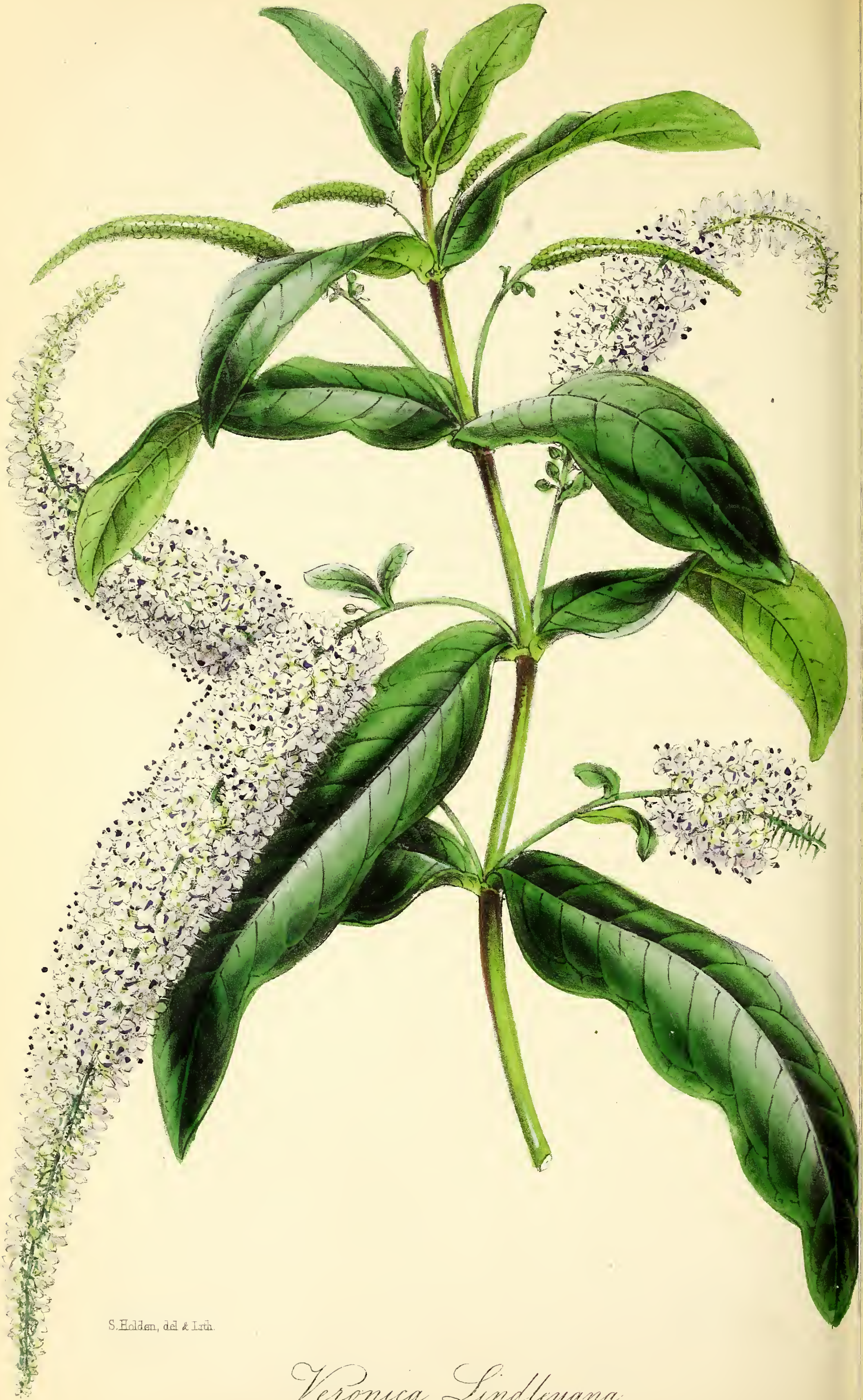
In the size of the plant, and the general proportion which the florescence bears to other organs, as well as in the diminishing breadth of the foliage, from the base of the stem upwards, it approaches the character of the popular favourite, though by no means so narrowly as to admit a chance of mistake, even when destitute of blossoms. The latter, however, are most markedly distinct from those of its congener; they expand more widely, are supported in an erect position, and instead of a porcelain hue, are of a brilliant light cœrulean blue.

We owe our first acquaintance with it to specimens which flowered in the gardens of —— Allcard, Esq., at Stratford Green, Essex, and from these we were kindly permitted to prepare the figure. It was grown there as a border plant, in extensive masses, and was in full bloom in the month of June.

It is a native of Nepal, where it inhabits moist and somewhat shaded places. On account of its erect habit it was first named *C. stricta* by Dr. Wallich; but that title having been previously bestowed on another species by Linnæus, he afterwards altered it to *C. sylvatica.*

Young plants reared from autumn-sown seeds, and kept in an airy and cool part of the greenhouse through the winter, will flower early in spring. On this account, and the conspicuousness which the upright position and fine colour of the blossoms impart, together with their copious numbers, it constitutes an acceptable subject. When put in pots, however, two or three plants should always be grown together in each, using a loamy soil, with a little peat. It is also essential during the progress of the plants to keep them near the glass, and to avoid a high temperature, particularly at night; otherwise they are apt to grow loose and untidy, and to send out weak and lengthened flower-stalks.

It is an excellent little plant for the parterre, and this qualification perhaps forms its best recommendation. It flowers early, and continues to bloom for a considerable period. Seeds ripen in abundance.



S. Holden, del & Lith.

Veronica Lindleyana.

VERÓNICA LINDLEYÀNA.

(Dr. Lindley's Speedwell.)

Class. DIANDRIA. *Order.* MONOGYNIA.

Natural Order. SCROPHULARIÀCEÆ.

Generic Character.—*Calyx* four, rarely five, parted, campanulate or compressed. *Corolla* rotate, with a very short tube, and a four-parted spreading limb; segments all entire, upper one the broadest. *Stamens* two, situated at the sides of the upper segment of the corolla, diverging, without any vestige of the lower ones. *Anthers* two-celled; cells confluent at the top. *Stigma* hardly thickened. Valves of *capsule* septiferous in the middle, or bipartible. *Seeds* naked.

Specific Character. — *Plant* an evergreen undershrub. *Leaves* opposite, oblong-lanceolate, acute, sessile, entire, glabrous. *Racemes* numerous, peduncled, springing from the axils of the leaves. *Flowers* white.

This, as an elegant ally of *V. speciosa*, does not aspire to the magnificence of that species; but in other respects it has more interesting features. The habit of *V. speciosa* is of a stiff and robust nature; this, on the contrary, is free, and elegant; its flower-spikes are produced in the greatest profusion; and these, covered with innumerable delicate white flowers, contrasting with their light purple anthers, produce a charming effect.

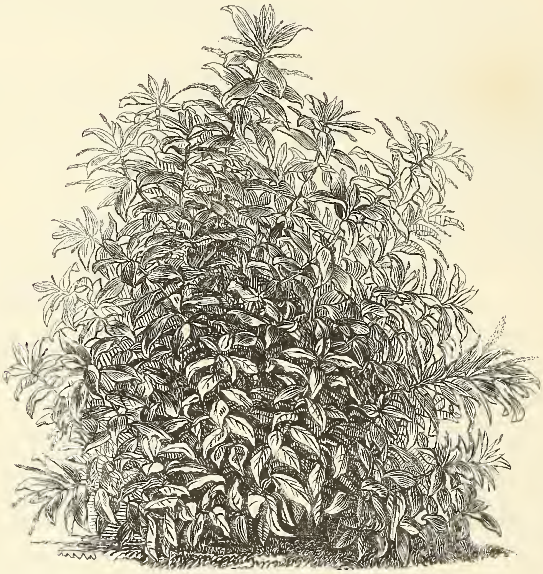
Our illustration is prepared by the kind permission of Mr. Glendinning, of the Chiswick Nursery, from an excellent specimen grown by him.

That gentleman writes—" *Veronica Lindleyana* was raised from seeds sent from New Zealand in October, 1843, by Mr. Thomas Cleghorn, formerly a Nurseryman of Edinburgh. It was presented to me by my esteemed friend, Mr. James McNab, Curator of the Royal Caledonian Horticultural Society's Garden, Edinburgh. It flowered in one of my greenhouses this autumn, for the first time in Europe, at least as far as I am aware; and when shown to the distinguished botanist whose name it bears, he pronounced it to be perhaps a new species. It was exhibited by me in September last before the Horticultural Society of London, and obtained the Banksian Medal. It was then loaded with innumerable spikes of its elegant white flowers, which sometimes produce as many as twelve spikes upon one short branch.

" Mr. McNab informs me that numerous seedlings were raised from the imported seed, by Mr. McIntosh, gardener to His Grace the Duke of Buccleuch, at Dalkeith, and also by Mr. John Purdie, Nurseryman, Edinburgh. Considerable variety was observed in the appearance of the seedlings, but chiefly as regar robust or weak habit: to the former class does our present subject belong; a being of the easiest possible culture, and a perfectly hardy greenhouse plant, it likely to be extensively cultivated."

It should be grown in a moderately rich soil, composed of three parts sand loam, and one part leaf-mould, and allowed plenty of pot-room.

The specific title is given in honour of Dr. Lindley. The species approach very near to *V. salicifolia*, and is very similar to it in foliage and habit. T leaves are, however, somewhat broader. Its appearance is better shown in t woodcut.



PHENOMENA OF WINTER.

As the year approaches to its close, and we cannot meet our readers again for some little time, it will be of some moment to claim their attention to inquiries, retrospective and prospective, that may tend to correct misconceptions in science, and remove obstacles that retard improvement.

We have formerly adverted to the instrumentality of the electric element in all the phenomena of vegetable life; and the period is not remote since we announced the theory that the sun was a luminous body, containing in itself the elements or principles of *light*, *magnetism*, *electricity*, *and heat;* that the beams contain electrizing and calorific principles, which, when brought into action in a proper medium, produce and develop *electricity* and *heat*.

Arguing upon these mental inductions, it was maintained that the doctrine of caloric and latent heat were delusions, by which effects were mistaken for, and assigned as, causes.

Gradually, truth has dawned, clear and more clearly from time to time; and now, if the announcement in the *Times* newspaper of Nov. 5 be literally correct, discovery appears to confirm, what theory pointed to as more than probable. A letter addressed to the Editor on the 4th, by Sir James South, states that, "in addition to other scientific discoveries of the highest order, made during the last forty years in the laboratory of the Royal Institution, Mr. Faraday, its Fullerian Professor of Chemistry, yesterday announced to the members present that, in the prosecution of his researches in electricity and magnetism, he had succeeded in obtaining experimentally, what he had long sought for—namely, the direct relation of electricity and magnetism to *Light*. The details of his experiments, which exhibit the magnetization of light, the illumination of the lines of magnetic forces, and a *new* magnetic condition of matter, will be presented to the Royal Society immediately," &c., &c.

Thus far only are we for the present informed of the position of this important confirmation of those views that, above fifteen years ago, were offered to the public as a *Theory of Light*,—which defined it as a *material fluid*,—in its *nature the most subtile*, *penetrating*, *and energetic*, the *source of all the phenomena of heat*, *electricity and magnetism*,—in itself subject to decomposition, or exerting an inductive energy, by which it effects the most astonishing electro-chemical changes."

It is thus that the scientific gardener ought to contemplate and study the phenomena of vegetable developments; he should not be content to admit light by means of glazed sashes into his horticultural erections, and to think that by so doing he permits the rays of the sun to stimulate his plants. To do so, without further reflection, would be to yield servile admission to a bald fact. It is true that a workman of uncultivated mind cannot be far in advance of the mere mechanism of his art; but the genuine amateur, whose intellect soars far higher, and searches into causes, has attained already ample reason to discover that there are, in every ray of light, agencies which are susceptible of numerous modifications. Even the small projections upon a pane of common crown glass have long been known to exert a lenticular action resembling that of a burning-glass; and more recent discoveries have shown that colouring materials, incorporated with glass, produce definite and sensible effects upon foliage and flowers.

With these simple facts before us, pending inquiries of far higher moment, we have cause sufficient to pay the utmost attention to the effects of various kinds of glass when employed in different aspects.

During the course of the present year, and a month or more of its predecessor (1844), the condition of natural light has been most peculiar. The gardener was perplexed by the long and continuous gloom which commenced at the latter end of the autumn of that year. December was little better than a blank; clouds entirely obscured the sun, and thus permitted little else than the weakest diffusion of light; and hence the radiation of heat from surfaces artificially heated, either by fire or hot water, produced extension of parts, but no healthy organic action. With this gloom there existed frost and wind of most penetrating character.

January became warmer, and more sunny. Contrary to its usual and proper character, it proved the only mild month of the winter, and four of its weeks were isolated among fifteen others of unwonted severity. This mild interlude did much injury to a few of the most beautiful subjects of our winter gardens, because it induced some activity in the fluids, which subsequently became at once arrested by the extreme frost of February: thus Laurustinus, Sweet Bay, and above all, the Arbutus, were cut up, and in many places entirely destroyed.

February was comparatively dry as to rain. Some snows fell, but the ground lacked that store of moisture which is seasonable, and then generally expected. On the contrary, the first fortnight was bright and frosty, the intensity falling on the 12th, when at sunrise, the night thermometer marked 27 degrees (*i. e.* 5 of Fahr.,) and in some gardens the mercury fell to zero. The average of the whole month was below freezing, and when March came in there was no prospect of a change. Thus it may safely be registered, that from the end of November to the 10th of April, with the exception of the four mild weeks of January, the forcing gardener had to struggle against absolute frost; while, in the open air, the surface of water was never free from ice, and icicles hung suspended from the fronts of all the sashes.

It is highly probable that a season of so much asperity will not speedily recur; but it is always desirable to be provided with resources against such a calamity. One of these we fortunately possess in the strong and thick "*sheet glass*" of modern introduction; a medium that not only defends by its substance, but in a great degree prevents the escape of warm air from beneath, by the truth of its level form. With the abatement of duty, and the freedom from breakage, this sheet-glass becomes an article of real economy. It is also much more free from blemishes than was the old crown; and thereby permits the passage of the rays more freely, and with less irregularity of refraction.

Where a moist atmosphere is to be kept up, it is a question of some doubt whether a powerful, but diffused light is not preferable to a direct ray; for by accumulation of drops of water myriads of lenses are formed, which act focally, and sometimes must be productive of injury; as is the case almost beyond doubt when a crop of grapes, just in the process of stoning, become scalded. And as fruit may be, and is injured, flowers, doubtless, are equally exposed to accident.

Expense must be always an important item in horticultural erections; otherwise, sheet-glass, ground on one side to take off the polish, would be an admirable medium for the equable diffusion of a full glare of sun. Sliding screens of oiled muslin form a capital substitute, either by day or night. They should be made to run under fillets, so as never to be moved by wind; and with this extra defence much fire by night would be spared, because the heat within being retained, the action of the flues or watercourses would be much reduced. By night, we require protection, not active heat: hence more is done, and with far less injury, by effectual coverings, than by fire.

Nevertheless, as artificial heat *is* required, a furnace should always be employed, which will consume everything that is in any degree combustible.

We have before alluded to this subject, and become more and more convinced of the extravagant waste that attends coke fires; and consequently of the erroneous construction of the cylinder-boilers which are fed with such fuel at the top.

A furnace, with double doors, bars, and other appurtenances, which would admit of a large mass of cinders, small, smouldering coal, (that termed the *Moira*, from Leicestershire, is the best) is to be preferred, whether water be employed or not; and forcing will never be rendered safe or economical till such a hot-water furnace be constructed, and brought into complete and certain action. There are so many forms of hot-water boilers offered by advertisement, that it is difficult to decide upon their several merits; however, there is one material point which ought to be considered of great moment, and that is, the avoidance or combustion of smoke. Coke and charcoal yield no black smoke, but both are too expensive; small cinders, and lumps of Moira coal, yield it in diminished quantity; but it is above all desirable to cause the distillation and combustion of the inflammable coal-gas. This can be promoted in two ways—the first is, to bring the body of fire most remote from the door, and nearest the flue-neck, to a state of bright red heat; and then to feed the fire by additions laid in body upon a heated iron plate cast in front of the bars, upon which the coal becomes hot, parts with its hydro-carbon, which is therefore carried over the red-hot coal, and thereby is ignited. During this process of distillation, the coal in front is partially coked; and being pushed forward when it becomes needful to feed the fire, it inflames immediately on coming into contact with the red-hot mass. Mr. Loudon suggested this method of economising coals many years ago.

A second method is to introduce a small tube with a fan-like orifice, through which a volume of the waste steam of a boiler might be impelled upon the generated smoke. On this principle the locomotive steam-engines are constructed; and by the decomposition of watery vapour, oxygen and hydrogen gases are liberated, and come in aid of the fire; the one acting as a supporter or exciter of combustion, the other as an actual combustible.

Wheresoever we can conveniently apply such true principles of Chemistry, and bring them to bear on practice, we do the utmost service to Science and Art, by justifying the former in removing the blind prejudices of its opponents, and establishing the latter upon a base far more satisfactory than that of empirical routine.

The operation of hot water in warming houses by means of a tank and water-channels becomes daily more satisfactory, and for the following reasons :—

1. The heat produced is more natural, in so far as it approaches to the moist exhalations produced by solar power upon damp soil in hot countries.

2. It is entirely free from sulphurous gas and vapour of carbon diffused from the common brick flue, and—

3. It is more equable, and maintains a corresponding temperature in every part of an erection.

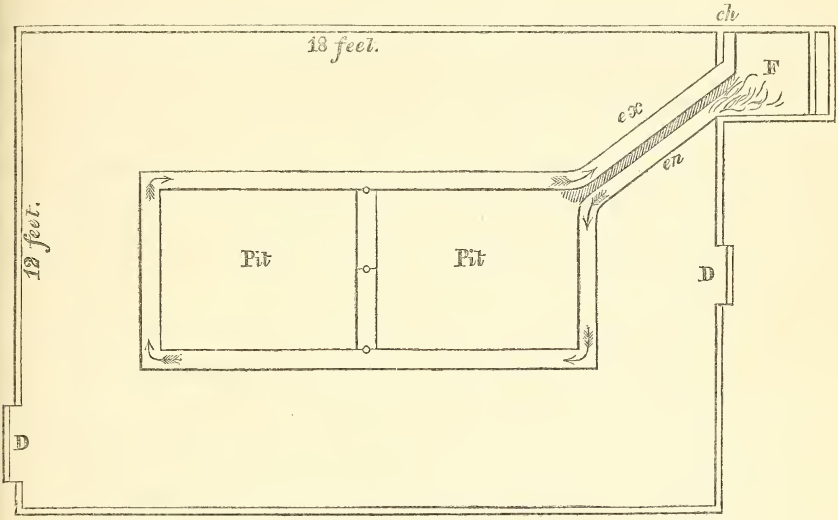
At the same time, it should appear, that, as a medium of bottom-heat, it can by no means compete with that produced by dung, tan, or leaves, in fruit-growing; though it may answer perfectly well in the propagation-house.

There are those who adhere to the old brick flue; and certainly there is a method of building by which every purpose may be effected, combining great and efficient power with considerable equability of radiation and diffusion of heat. This we shall attempt to describe from inspection of a house wherein there is one that was erected a few months since.

A common oven-furnace was built outside of, and close to, one corner of the back wall: if this oven were of cast iron, as once before recommended in a former article, it would never require rebuilding or repair. From the furnace the flue enters by a neck, which takes a diagonal direction for about a yard-and-a-half; it then turns short to the right or left, nearly two yards within the wall of one end, running in a corresponding direction with it. The entire flue is shown in the following ground plan, where F is the furnace and its steps, (*en*) is the diagonal *entering* flue, with its neck; the bent arrows indicate the course of the flue throughout its four courses—the last terminating in a diagonal length, which enters the chimney built over the furnace; this course (*ex*) is parallel with that of the entrance. The space within the flue courses is divided by a flue also, governable by three dampers, that drop in at the three places marked, o, and are raised by hooked iron rods; so that the smoke may be permitted to pass the central flue, or be made to pass along the whole range. DD are two entrance doors.

All the flues are built of pigeon-holed bricks on edge, upon which rest 9-inch paving-tiles. Upon these are courses of three bricks on edge, pargeted within, and securely covered with other 9-inch square paving-tiles.

GROUND PLAN.



From what we have stated, and by inspection of the plan, it will be evident that a flue so erected, (if by a judicious management of the neck it draws well,) must radiate its heat very regularly, so as to produce an equability of temperature rarely to be met with in houses warmed only by fire-flues.

The construction also forms a very excellent pit, which may be filled with stable-dung, tree-leaves, tan, sawdust, or sand. The only objection which suggests itself, is the dryness at the sides, created by contact of the materials with a heated surface of brick. However, moisture may always be maintained by introducing a rain-water tank in, or under, the house; and here we may allude to a new range of houses which we inspected, where the front walls being built upon arches, a very large recipient was excavated under them which contained all the water that fell upon the sashes, from whence it was laded out with great facility by an opening covered with a trap-door, made to fit close and move upon hinges.

The covering of the flues might consist of tiles prepared to contain water; and then, by watering the two surfaces of the flued pit, a copious vapour would be raised without, and aridity obviated within the pit.

A house of the description now indicated—18 or 20 feet long, by 10 or 12 wide, would form a very efficient pine-stove, grapery, and plant-house: we find no deficiency in it; and further, if it be fitted up with semi-transparent, moveable screens, made of some light, oiled fabric, secured, as we have hinted, by fillets and small bolts, the heat would be supported by night far more effectually than by the wretched appliance of garden mats, which require nailing and boarding, at the imminent risk of damage to the glasses, and disfigurement to the woodwork. Mats may do pretty well in the front, but even there sliding-screens are in every way preferable, and are fitted up at lighter cost in the long-run.

Mats require renewal every season, and many pounds are expended yearly upon them in large establishments: they, moreover, admit of no congenial light by day, the colour they impart being a dingy buff, inimical to vegetation; whereas, by screens, the white light is diffused, softened, but not changed in its character or agency.

Some persons would object to screens, on the ground of decay, occasioned by advertised fluids. We believe that common, pale, linseed oil, laid evenly upon canvass or linen, would preserve the fabric for three seasons, and cost a mere trifle; at all events, the principle now advocated is sound, and requires only the sanction of practice.

It will be evident from all that is above stated, that our plan refers only to forcing-houses. Many, however, of the choicest plants require no artificial heat; and for such, low-built brick pits are the most effectual. These should be deeply excavated, so as to admit a plant three feet high at the back. The ground on which pits are erected should always be perfectly drained, otherwise (as we once saw) water may rise during a wet winter, flood, and destroy everything. Dry sawdust is a capital plunging material in such pits, as it prevents the freezing of the soil; and for coverings, correctly made straw mats are exceedingly trustworthy: being an inch and a half thick, frost can find no entrance, particularly if they are kept dry by a few deal boards.

THE PLANTING SEASON.

In forming plantations, or decorating a new garden with shrubs and trees, or supplying vacancies in the shrubberies of a pleasure ground, or making any alterations in gardens already planted, or in shifting particular specimens to a more suitable or desirable position, nothing can be more important than for the operator clearly to understand the principles on which success will be dependent, the periods best adapted for the removal, and the various little niceties required in the execution of the process. Everybody who has a garden, also, being to a greater or less extent a planter, it may be assumed that there is a kind of universal demand for information which shall both facilitate the proceeding and render it in some degree certain.

To supply a variety of hints, therefore, which shall be tangible to all, and which shall—as all such suggestions should—deal rather with the more necessary points of practice than with those abstract propositions which take such a much wider range, is our purpose in now adverting to the matter. The time, too, at which we write is likewise favourable for drawing due attention to the subject, as most persons will be actively engaged in the operation we are to discuss.

If we consult the best writers on the subject, especially the more recent correspondents of gardening periodicals, we shall soon discover that the widest possible latitude is taken as to the season recommended for planting; some advocating spring, others early autumn, many the winter, and a few asserting that the beginning of the summer is best for evergreens,—which are of course the most difficult and dangerous class to transplant,—while there are those who declare that it is of no consequence what period is chosen, if the thing be done in a proper manner. Notwithstanding this variation, however, in the views of practical men, and the easily observable fact that whereas some cultivators scarcely succeed when their planting is done at the fittest season, others obtain success when they perform theirs at what appears the least suitable period, there is undoubtedly a time at which, of all others, it is most proper to move at least *deciduous* shrubs and trees, and this time is the whole of the month of November. Without going into the philosophy of the case, most practitioners will agree that the plants of this description which are moved about that period far more invariably live and flourish than those which are kept till a later season; particularly when a hot and dry summer ensues.

But with regard to evergreens, there is much more room for diversity of views; and the climate of a locality has a great deal to do with determining the question satisfactorily. On certain parts of the coast, for example, where violent winds from the sea prevail towards the end of winter, and even into the earliest spring months, it is quite essential that evergreens be not transplanted till April or May, or even later, according to the aspect and promise of the season.

And besides the nature of the climate in many localities, there is another reason why evergreens should not be planted till the period just referred to; this being that they are just commencing their growth at that time; and if they can once get established in the ground after their yearly developments have begun, they will seldom get injured subsequently, and may usually be considered safe.

Still, it must not be disguised that there is considerable risk in planting evergreens at this late period, from the liability that a dry summer may follow, and the difficulty, as well as expense, of keeping them duly supplied with water in such a case. This is but one of the contingencies necessary to gardening processes, however, and as the choice must inevitably be between two evils or classes of evils, we should prefer the spring planting as the least; except in those districts where the climate is so genial, and the winter and very early spring winds are so gentle, as to admit of autumnal planting with perfect security, when it is doubtless most desirable.

Of far greater moment to the successfulness of the process than the period chosen for performing it, is the preparation of the ground, the selection of the plants, and the mode of conducting their transplantation. We shall speak of each of these separately.

It has been too customary to regard any trouble expended in preparing a plot for planting, as labour thrown away, or, at any rate, as by no means of that practical use which theoretical writers represent it to be. And much as this delusion has lately shrunk away before the clear light of experience, its influences are yet prevailingly felt and acted upon. Yet there cannot be a more radical error. The most elaborate preparation is always more than repaid. Draining, trenching, manuring, the admixture of lighter or more adhesive ingredients, and the attending to all this a sufficient length of time before the planting takes place to allow of due incorporation, pulverisation, the decay of weeds dug in, and so forth, are, as it were, the very elements of the plants' future well-being.

That is a very contracted and ill-judging policy which carefully adapts the mere pit in which each plant is to be placed, and leaves the rest of the ground undisturbed, or only partially worked. Every portion of the plot should be thoroughly stirred, and the whole rendered equally suitable, or, in a few years after planting, many of the specimens will be seen making but miserable and imperfect growths at the points of their shoots. Every cultivator who has travelled at all will have noticed, in many places that have passed under his observation, the newly-planted things, and such as have only been growing on the place a few years, look healthy and well, while those which are of longer standing begin to get stunted and weakly at the top, and to relapse into premature decay. This is a striking illustration of the effects from undue preparation for planting, and should act as a powerful caution as well as stimulus.

The bad consequences we have just described, occurring as they do, in general, from want of proper preparation of the soil, arise, in particular, from the neglect of two processes in that preparation, viz., draining and meliorating, or mellowing. A deficiency of adequate draining is, perhaps, the greatest evil, and its effects are soonest manifest. But we have seen instances in which ground was nearly as dry as it is required to be towards the surface, while it was perfectly saturated in wet weather at from nine to fifteen or eighteen inches below the top. Plants have thriven in this, as a matter of course, till their roots reached the wet part, and then they have suddenly gone back. Hence we deduce that the superficial aspect and dryness of ground should not be depended upon, but that it ought to be drained to a reasonable depth,—say thirty inches or three feet.

Nor is the absence of right preparation, in regard to the amelioration of a soil's texture and quality, a thing of so much lighter influence that it can be incurred with impunity. We have in our recollection an estate having been planted, where the soil was clayey, by the addition of a small quantity of lighter earth to just the limited spot on which each plant was put; and though the result was for a short time satisfactory, directly the plants pushed their roots beyond the little circle which had been improved for them, they began to degenerate, and afterwards became visibly more and more impoverished.

The advice that we would inculcate, then, from these statements of facts is, —and we hope every planter will feel induced to adopt it—that, as a question of sound economy and policy, it is always best to see that a thorough basis is laid for a thriving plantation, by rendering the drainage perfect and the soil sufficiently pulverised, enriched, or strengthened ; allowing time, in the effectuation of this, for the decomposition of all crude matters that may naturally be present, or may necessarily be applied, prior to the actual insertion of the plants.

When we allude to the usefulness of exercising a wise discretion in selecting plants for removal, we include several things. First, if they are to be obtained from a nursery, it is of the highest consequence that the soil of that nursery should be studied before fixing upon it as the source of supply. Some nurseries are situated where the soil is a deep rich loam, and, consequently, the plants send down long centre roots, called tap roots, without spreading abroad near the surface those fine fibrous rootlets which constitute the chief resource of a freshly-planted specimen, and which enable it so much sooner to form a mature plant, besides imparting to it a symmetrical and ornamental bushiness. The mischief is increased in such places where the ground is also damp, inclining to wetness, for then an undue luxuriance is further engendered.

There are other nurseries, the soil of which is of such a comparatively dry and shallow nature, sandy matter being pretty abundantly present, that all the roots which plants form in it extend horizontally, and branch out into numberless little fibres. This is more conspicuously the fact when the substratum is a rocky one.

The difference in the value and usefulness of plants procured from two nurseries answering to each of the above descriptions, is really inconceivable, except to those who have experienced it. Having had occasion to test it within the last few years, we can speak most confidently as to the advisableness of choosing plants from that which has the kind of earth last mentioned.

Nevertheless, soil is not the only thing which has to be thought of in buying nursery plants. The adaptation of the climate should be looked to. It is preposterous to expect things brought from a warm, sheltered, genial spot, where no kind of rough and prejudicial winds are experienced, to do well in a district which is greatly elevated or exposed to the sea, and subject to the most violent and detrimental gales. For plants to thrive, therefore, they should be had from a nursery which is at least as cold and open as the place in which they are to be planted.

The same conditions will apply, in reference to similar matters, to any removals which may be effected in private gardens. The shallower and more open the soil may be, the better will the plant be furnished with those roots which are essential to its establishing itself speedily after it is transplanted. It may be laid down also as a rule, that there is a chance of failure when a plant is taken from a crowded and quiet place into one which is a good deal exposed, though the opposite practice is not merely perfectly safe, but extremely beneficial.

On no kind of plant, however, is it requisite to bestow so much forethought and care in the selection for planting, as upon trees varying from twenty to fifty feet in height, and on very large specimens of shrubs. These are, in the first place, more valuable and important, and would be more missed if they died, or cause real disfigurement if they became sickly; and, in the second place, their removal, to ensure success, is more difficult; while, thirdly, they are, from their size, more liable to be harmed by those adverse atmospheric agents which would hardly strike—or would act less forcibly—on smaller and more compact objects.

Independently, then, of the advantage of noting that a specimen tree which has to be moved is growing in a light and not a very deep soil, and that there is, if possible, a hard substratum, so that the roots lie, as much as may be, over the surface instead of striking much downwards, it is proper to observe the position in which the tree is placed. If it be entirely detached, it will be most completely suitable; whereas, the more its situation approaches to a confined or crowded one, or to one peculiarly sheltered, it becomes less and less fitted for transplanting, and the more so when it has to stand alone as a specimen, or to tower above others for breaking the sky outline of a plantation. This view likewise includes, with the chances of the tree's success after removal, its appearance in an ornamental light.

We come, at length, to the last point which we proposed adverting to, and which is probably of more moment than all the rest. It relates to the numerous small matters involved in carrying out the actual operation of removal. Suitable weather, extreme attention to the roots in taking up the plants, care in keeping the roots from drying while they are out of the ground, the utmost minuteness of patience in spreading them out properly and covering them gradually and gently with well-pulverized earth, with efficient staking and watering when requisite, are some of the means which demand the most thorough and practised skill. Persons of the smallest observation know how far more rapidly a wound on any of their own limbs would heal, and the member become fit for fulfilling its usual functions healthily, when such a wound is bound up immediately, and kept from the action of the air. Yet this fact is forgotten in the analogous case of a plant with wounded roots, which is often left mercilessly exposed to all kinds of hurtful influences for a period which renders its recovery quite a subject for wonder, and which shows how much plants will endure and yet live.

It is not easy to estimate correctly the extent of injury a plant undergoes by being treated as a lifeless stick; nor to determine what is the large amount of advantage it gains from having a treatment accordant with its nature as a living thing. In the former case it continues to exist solely in consequence of a superabundant energy in its vital power. In the latter, it scarcely feels the removal, and at once proceeds to draw sustenance from the new condition in which it is fixed.

A moist day is the best for planting, because any kind of drought to which the roots may be exposed, robs them of a proportionate quantity of what may appropriately be called their vital blood. Want of care in preserving all the small roots is injurious for the same reason, and also as it deprives the plant of so many means of drawing nourishment after it is planted. The demand on the leaves and other exposed portions by the atmosphere becomes greater than the resources which can be taken up by the roots will compensate. Sufficient covering for the roots, while the plants necessarily lie out of the ground, is also useful to prevent the undue evaporation and loss of essential moisture.

To spread out the roots of a plant with an adequate minuteness of attention while fixing it in its new position, is, moreover, an essential step; for if the roots get crushed and broken in this process, or if they be not so disposed as to have each a clear space left for extension and for imbibing food, all the previous caution will be of no avail. And in this direction is included the covering of them softly and thoroughly with finely-broken light earth, which should be interposed nicely between the several layers of them, placing and covering each root individually. At the same time, all broken or damaged ends of the roots should be cleanly cut away with a sharp knife.

As to watering, the amount of that must be determined by the state of the atmosphere, both at the period of planting, and throughout the subsequent season. As a general hint, evergreens require most, and all sorts of plants should be supplied with it before they are likely to want it. If the other points of which we have spoken be, however, duly regarded, waterings will not be so needful as where less attention is bestowed. What is called puddling, which is practised by some planters under special circumstances of drought or lateness in the season, is a highly injudicious proceeding. It tends to seal up the roots against both air and moisture for a very long period afterwards.

With respect, lastly, to staking, this is of the utmost utility to all plants which are liable to be blown about by winds; for winds, by shaking the plants, break off the small fibrous roots, and thus throw the specimens back a considerable time. We may here remark, as a sort of sequence to this observation, that when stakes cannot be given, or when merely forest planting is in question, it is much more prudent to use only plants of low stature, and such as will not present a mark for the winds to drive at.

We have thus gone over a deal of ground, which, we are aware, has frequently been travelled before; and we are less anxious to bring forward new truths than to enforce old ones, the latter being more likely to be forgotten. Many things we have no doubt omitted; amongst which is the indispensableness of having balls of earth to all specimens which are transplanted, after they grow to any size. But we have collected a number of prominent points together, and look rather for the partial and gradual issue of our efforts, than for that complete revolution in practice which the writer of a more comprehensive or extended essay would be supposed to expect.

FLORICULTURAL NOTICES.

NEW OR BEAUTIFUL PLANTS FIGURED IN THE LEADING BOTANICAL PERIODICALS FOR NOVEMBER.

Aza'lea Ludovi'ciæ. "Nothing can be prettier than the delicately-coloured flowers of this plant. Instead of a pale yellow or straw-colour being the prevailing colour, we have a gay, rosy tint superadded.

"No one would have believed," writes Dr. Lindley, "upon slighter evidence than that of the Dean of Manchester, that such plants as have thus been figured were seedlings from the *Pontic Rhododendron*, to which they bear no manner of resemblance; and they teach us a lesson in possibilities, which persons unacquainted with such facts will do well to recollect. If the common *Pontic Rhododendron* can by art, however applied, be compelled to bring forth a *Pontic Azalea*, there remains no ground for regarding as impossible even such results as the production of *Rye* by *Wheat* or *Barley*, or of *Plums* from *Pear* trees." *Bot. Reg.* 60.

Ca'ttleya granulo'sa; *var.* Russellia'na. "Some fatality seems to have attended this beautiful plant in our gardens. It was sent to Sir W. J. Hooker, from Woburn, as a Brazilian Orchid; but we can find no evidence to show that it is a native of even the Southern hemisphere. At Syon, whence, by permission of His Grace the Duke of Northumberland, our specimen was supplied, it is said to have been received from Dr. Wallick, in 1839, which is probably another mistake. There can be no doubt at least about its being in reality a very fine variety of the Guatemala *C. granulosa*, and its introduction may with good reason be referred to one of Mr. Skinner's numerous importations.

"It is not surprising that it should have been referred to *C. guttata;* for the old specific character of the latter fits it very well. But if the figure of that species in the Horticultural Transactions, vol. ii. t. viii., second series, be consulted, the difference between the two will be manifest.

"We suspect this plant to be more common in collections than is generally supposed, and that it stands in many places as a representative of *C. guttata*." *Bot. Reg.* 59.

(Many beautiful varieties of *C. granulosa* have recently flowered in the Exotic Nursery.—See our Notices of "New or interesting Plants recently flowered,") &c.

Dendro'bium kingia'num. "This curious epiphyte was bought by the Messrs. Loddiges at the sale of Mr. Bidwill's New Holland plants, two or three years since. It has pseudo-bulbs between four and five inches long, tapered from an ovate base into a very long and narrow neck, on the top of which stand two oblong, emarginate, dark-green, rather wavy leaves. Between these is a flower-stalk having two or three pink flowers gaily spotted with crimson in the inside. On some of the offsets the number of leaves is four, but the prevailing number is two."—*Bot. Reg.* 61.

Geni'sta (*Teline*) Spachia'na. "This is a pleasing addition to the many-flowered and sweet-scented group of Canarian *Genistæ*, which in early spring enliven the conservatory and green-house. Though a native of the Canaries, the present species was not taken up in the 'Phytographia Canariensis,' forming part of the 'Hist. Nat. des Iles Canaries,' the author of that portion of the work not being able to decide on the specific value of the plant, owing to the incomplete specimens in fruit, but without flowers, which alone existed in his herbarium. It has now flowered from seeds sent by him formerly to Europe, both at Mr. Young's nursery, at Milford, near Godalming, and at the Jardin du Roi, at Paris. It has been named in honour of Mr. Edward Spach, assistant naturalist in the latter establishment, whose learning and acute observation have so much advanced the '*aimable science*.'

"The G. (*Teline*) *Spachiana*, indigenous to the high mountains of the N. W. of Teneriffe, will probably prove hardy in the climate of England. It existed for several years at Paris in the open ground, and was only destroyed by the cold of the late severe winter." *Bot. Mag.* 4195. There is a great similarity between all the members of this family, and the present species does not form an exception.

Hebecla'dus biflo'rus. "A very pretty Solanaceous plant, with graceful drooping two-coloured blossoms; a native of the Andes of Peru, about Tarma, Canta, Culluay, &c., according to

Ruiz and Pavon, and collected in the same countries by Mr. Mathews, but only recently introduced in a living state by Mr. Veitch, of Exeter, through Mr. William Lobb. It flowered in Mr. Veitch's Nursery in August, 1845, and from a fine specimen, kindly communicated by him, the accompanying figure is taken. It only requires a good greenhouse, and may easily be increased by cuttings, and probably by seed. The generic name is derived by Mr. Miers from ἥβη *down*, and κλάδος *a slender stem*, in allusion to the character of some of the species. The genus includes a very natural group of *Solaneæ*, mostly natives of Peru and New Grenada, and all from South America." —*Bot. Mag.* 4192. This is an interesting plant; its pretty flowers, which seem to be produced in great profusion, have a charming effect.

Ixo'ra odora'ta. Sir W. J. Hooker writes: " We have been much gratified by the sight of a noble specimen of this splendid and highly odoriferous shrub. The leaves vie in size and almost in firmness of texture with those of the Indian Caoutchouc Tree (*Ficus Elastica*), while the numerous flowers, of the most delicious odour, form a spreading panicle, a foot or more in diameter, with deep-red-purple branches, each blossom four to five inches in length, the tube red below, white above, the white buds tipped with rose colour, the spreading segments of the limb white, soon twisted, and then changing to buff. The plant is in the possession of Messrs. Lucombe, Pince, and Co., of the Exeter Nursery, who received it from the Continent, under the incorrect name of *Ixora Brunonis*, and without any indication of its locality. Fortunately I have a fine native specimen from Madagascar, showing that to be its native country. Few persons who visited the last floral exhibition of the year 1845, at the Chiswick Gardens, will fail to remember the extreme beauty and fragrance of this truly desirable plant." *Bot. Mag.* 4191.

Lyca'ste fulve'scens. Sir W. J. Hooker received this species from the Rev. John Clowes, of Broughton Hall, Manchester, who sent it as a species distinct from *L. gigantea*, of Dr. Lindley. *Bot. Reg.* 1845, tab. 34. The Rev. J. C. observes respecting it:—" I received it, along with *L. gigantea* and other Orchideæ, from the province of Coro, in Columbia, of Linden's collecting." " And now, continues Sir W. J. Hooker, " that Dr. Lindley has figured the *L. gigantea*, we are the better able to point out the distinguishing characters, which may be found in the much smaller size of the flowers, and especially of the bractea, and the beautifully-fringed margin of the middle lobe of the labellum, to say nothing of the different colour,—here a rather pale tawny, with an orange-coloured lip, in *L. gigantea* a greenish-brown, with a red-purple lip."

" *Lycaste* is a name recently given by Dr. Lindley to a group of *Maxillarideæ*, of which *Maxillaria aromatica*, Hook. Ex. Fl. t. 219, and *M. macrophylla*, Pœpp. Nov. Gen. pl. 1 to 64, may be considered the types, and of which he has now described ten species, all natives of Peru, Columbia, Mexico, and Guatemala." *Bot. Mag.* 4193.

Onci'dium incu'rvum. This is a remarkably pretty and interesting species, nearly always in flower; no sooner have the blossoms of one panicle faded than those of another are ready to supply their places. Dr. Lindley states that " Mr. Barker gave it the name of *incurvum*, in consequence of the petals having a great tendency to turn inwards when the flowers first open; that tendency is, however, eventually lost, and the parts assume the position customary in the genus.

" In some respects it resembles the *Bird's-bill Oncid*, but it bears its flowers in a long, erect, and even-branched panicle, and it has neither the long rostel, nor the great column-wings of that species. Its colours are, moreover, very different, for its petals and sepals are regularly and neatly banded with red on a white ground, instead of being of one uniform rosy tint. *Bot. Reg.* 64."

Potenti'lla bi'color. A pretty herbaceous plant from Nepal. " In general appearance it looks like a hybrid between *P. atrosanguinea*, or *nepalensis*, and *insignis*. In some respects it approaches *Potentilla insignis* itself; it may also be compared to *P. villosa*, which is found in Nepal, but it is five-leaved and long-haired. The appearance of the petals is most delicate and beautiful—far more so than our colourers can represent. Their ground colour is a clear yellow, over which, at the base, is drawn a series of long hexagonal red meshes, which form towards the circumference of the flower other meshes of a finer and closer fabric, till at last they melt as it were into each other, and form a clear red border to each petal." *Bot. Reg.* 62.

Sta'tice Fortu'ni. " A yellow sea-lavender is a rarity. This, which is a very interesting species, is a perennial, and will probably prove quite hardy. Its seeds were sent from China by Mr. Fortune in 1844, and were said to have been gathered at a place called Chin Chin, growing in sandy soil near the sea." The last circumstance, it is presumed, will be a useful guide in its cultivation. *Bot. Reg.* 63.

Smeathma'nnia læviga'ta. "A rare and remarkable genus, consisting of upright (not climbing) shrubs, with white scentless flowers, nearly allied to *Passiflora;* first made known by Mr. Brown, who described three species: *S. pubescens,* (Sol.), distinguished by its downy branches and its broad leaves, which are very obtuse at the base, and scarcely acute at the summit; our present species; and *S. media,* which our learned friend remarks may perhaps be a variety of the present. Our specimens, both cultivated and native, gathered by the Miss Turners, daughters of the late Governor-General Turner, and by Mr. Whitfield, do not entirely agree with the character of *S. lævigata,* for the branchlets, as well as the flower-buds, are evidently silky, and the urceolus of the flower is both fringed at the margin, and beset with hairs on the inside. The name was given by Dr. Solander, in compliment to Mr. Smeathman, an African naturalist and traveller, who detected the three species defined by Mr. Brown.

"This shrub constitutes a very desirable stove-plant, with glossy evergreen, almost distichous leaves and white flowers, growing downwards, and best seen on the underside of the branches. It requires the constant heat of the stove, and flowers freely, especially in July." *Bot. Mag.* 4194.

Scævo'la attenua'ta. "A shrubby plant, a native of South-west Australia, first detected and described by Mr. Brown, possessing little beauty in its mode of growth or foliage, but in June and July bearing rather copious spikes of bright, but light-blue flowers, which then give it a very pretty appearance. Our plant was reared from seeds sent by Mr. Drummond from Swan River, and probably gathered to the southward of that colony, towards King George's Sound. It is cultivated in good loam, and treated as a greenhouse plant, fully exposed to the open air and the rains in the summer, and housed in a cool greenhouse during winter. It may be increased by cuttings." *Bot. Mag.* 4196.

NEW OR INTERESTING PLANTS RECENTLY FLOWERED IN THE PRINCIPAL METROPOLITAN NURSERIES AND GARDENS.

A'ster bi'color.—This hardy little plant has long been introduced to the country; it is very interesting from its miniature proportions. In the Messrs. Henderson's Nursery, plants, a few inches high only, are profusely flowering; and, undoubtedly, will continue to do so, till prevented by severe weather. It is well adapted for rock-work, especially if on a small scale; also the foreground of a flower-border; and at this season it would form a charming object as an edging. We believe it is somewhat scarce.

Ca'ttleya granulo'sa, *vars.*—In the nursery of Messrs. Knight and Perry, several plants of this genus have been flowering, all varieties of the above species; their general habit is that of *C. Forbesii,* with the sepals and petals of some also resembling that species, in point of size and colour. In others, the flowers are large, with sepals and petals of a dark green; some have these parts of the flower pale-yellow, and covered with brown spots and blotches, as in *C. Aclandiæ.* But in the several varieties, the lip is the most remarkable feature; it is large, and for *Cattleyas* peculiarly marked, resembling *Zygopetalum crinitum, Mackayii,* &c.; it is of various forms, and the marking, for the most part, is a pale and dark red upon a whitish ground.

Cœlogy'ne ——— ?—In the Orchidaceous House, at the Messrs. Henderson's, one of this genus has been flowering for the first time. In general character, it resembles the lovely *C. Wallichiana;* its pseudo-bulbs are similar, as also are the size of its flowers, the petals of which are delicate lilac; its lip is beautifully fringed, and spotted with several spots of a yellowish-brown colour. We consider it *C. prœcox,* or, possibly, a variety of that species.

Cyano'tis axilla'ris.—A pretty little *Tradescantia*-like plant, producing innumerable bright blue flowers, at the axils of its dark-green linear leaves. With a little care it can be rendered an interesting object; it can easily be made to form a dense bush of any shape. The Messrs. Henderson, at whose establishment we have seen it, find young plants the most serviceable for flowering; old plants are very subject to damp off, and they do not flower so well from being less vigorous.

Catase'tum sacca'tum.—This genus is remarkable for the curious, but for the most part uninteresting, nature of its numerous species. The present is, however, a noble exception. Its pseudo-bulbs are about nine inches long, the old ones becoming shrivelled after they have once flowered; the matured annual growth produces the flower-spike, which is about a foot in length;

two-thirds of it is covered with its remarkable, but very beautiful flowers; the most conspicuous feature of these is their labellum, from which it derives its specific name, *saccatum*, alluding to its pouch-like shape; it is an inch in depth, and half an inch in diameter, of a bright orange-colour inside, outside mottled brown and orange; on the lower edge of its mouth is a black velvety marking; the column rises half an inch, yellowish-brown; the sepals and petals are of similar dimensions and colour; they appear to shrivel quickly after becoming perfect: their shape is oval. The leaves are eighteen inches to two feet long, pale-green and flag-like. A small specimen has recently flowered in a stove at the Hackney Nursery.

Da'phne índica ru'bra.—A valuable autumn-flowering plant. In one of the greenhouses of the Messrs. Henderson, several plants are producing their flowers, with all the luxuriance of spring vegetation. We have seldom seen plants of this genus occupy that attention their merits deserve; this is the more to be wondered at, as that attention would be so amply repaid. The highly fragrant qualities of most of the species are well known, and, in addition to this, several of them help to dispel the dulness of the winter months, by expanding their flowers at that season both in the greenhouse and in the garden.

Era'nthemum varia'bile.—A very desirable stove-plant from its flowering at this season, and we doubt not through the winter also. Its dwarf bushy habit, and dark-green silvery marked foliage, with spikes of light-blue flowers, render it an interesting object. From the small specimens we saw at the Exotic Nursery, King's Road, it seems as if it would be a profuse bloomer. It is not of recent introduction to the country.

Hoítzia coccínea.—A fine mass of this old plant, in one of the stoves of the Messrs. Henderson, on a recent occasion attracted our attention by its bright scarlet blossoms. It forms a bush two to three feet high, with its long slender branches thickly studded with small, soft, oval, pale-green leaves, from the axils of which it produces very profusely its long trumpet-shaped flowers, which, at this season, create a very lively effect. To manage it properly, some attention is required; young plants will be found most serviceable, as the leaves in old specimens, being of slight texture, soon become brown from decay, and consequently unsightly. It is easily increased by cuttings.

Isochìlus carnosiflo'rus.—In the Orchidaceous House of the Messrs. Loddiges, this species is flowering; among Orchids it has a very lively effect. The plant is composed of numerous slender stems, a foot to eighteen inches high, thickly studded with narrow oblong leaves, which at the ends are deeply notched; the flowers hang in terminal racemes at the end of the stems; the racemes are two to three inches in length; flowers bright-rose colour.

Justi'cia Macdone'lliæ. A fine yellow-flowered species, with the general character and habit of *J. coccinea;* it is very valuable from flowering at this time of the year, and not less so on account of the colour of its flowers.

Justi'cia ——— ? With the leaves and individual flowers resembling *J. speciosa*, its growth is much more robust, and the flowers are arranged in heavy clusters. This and the above species have very recently flowered in the collection of the Messrs. Henderson, at their nursery, Pine-apple Place.

Mura'ltia Heiste'ria. This is a very old genus, but, like too many others, neglected on account of its age. It is well deserving any attention or care that may be bestowed upon it. This is especially the case with the present species, which in general appearance is a *Furze*-like plant, with beautiful little bright purple and white flowers, which are produced in the greatest profusion amongst the rough-looking foliage. We have never seen any particular attention paid to the training of this genus; we have no doubt they would well repay any trouble that might be taken with them in this respect. The present species flowers freely at this season of the year: at the Messrs. Henderson's nursery, Pine-apple Place, we have observed fine healthy plants in flower.

Oldenla'ndia Deppea'na. At the Messrs. Henderson's, many interesting specimens of this beautiful little old plant have a striking effect, from the situation in which they have been placed, as well as from their individual worth: they are disposed through the greenhouses, elevated above the other plants. The habit of the plant is that of a close-growing shrub, with ovate-lanceolate leaves an inch long; the flowers are disposed in loose panicles at the ends of the branches, white, and immensely profuse: undoubtedly the treatment they have been subjected to renders them the interesting objects they are.

OPERATIONS FOR DECEMBER.

This having been a remarkably fine season for planting, on account of its continued openness, and the dampness which has prevailed in the atmosphere, it may be supposed that a good deal of it has now been completed. It is always desirable to forward this process as much as possible; for, when frost actually sets in, there are sometimes, as in last winter, left no favourable intervals of mild weather, for getting the planting done before spring. But as, from the ground not having been early enough prepared, or from any other circumstance, much of the planting may yet be unaccomplished, we would suggest that it is a bad plan to attempt it immediately after a heavy rain or a thaw, since the earth is then apt to be so much affected by treading on it as to become sodden.

In removing large specimens, which require to have balls got up with them, the operator cannot be too strongly enjoined to take a very wide circuit in digging about the roots, and gradually drawing in nearer to the stem as the outer roots are disengaged from the soil. A fork should by all means be used instead of a spade, in the first instance; and afterwards a pointed stick can be employed to loosen the soil from the outside of the ball, taking a spade to shovel out the earth thus liberated. The ball and roots must be well covered up with mats as soon as the plant is fairly lifted, and kept covered till it is set in its new position. It is of the last consequence to keep plants out of the ground as short a time as possible.

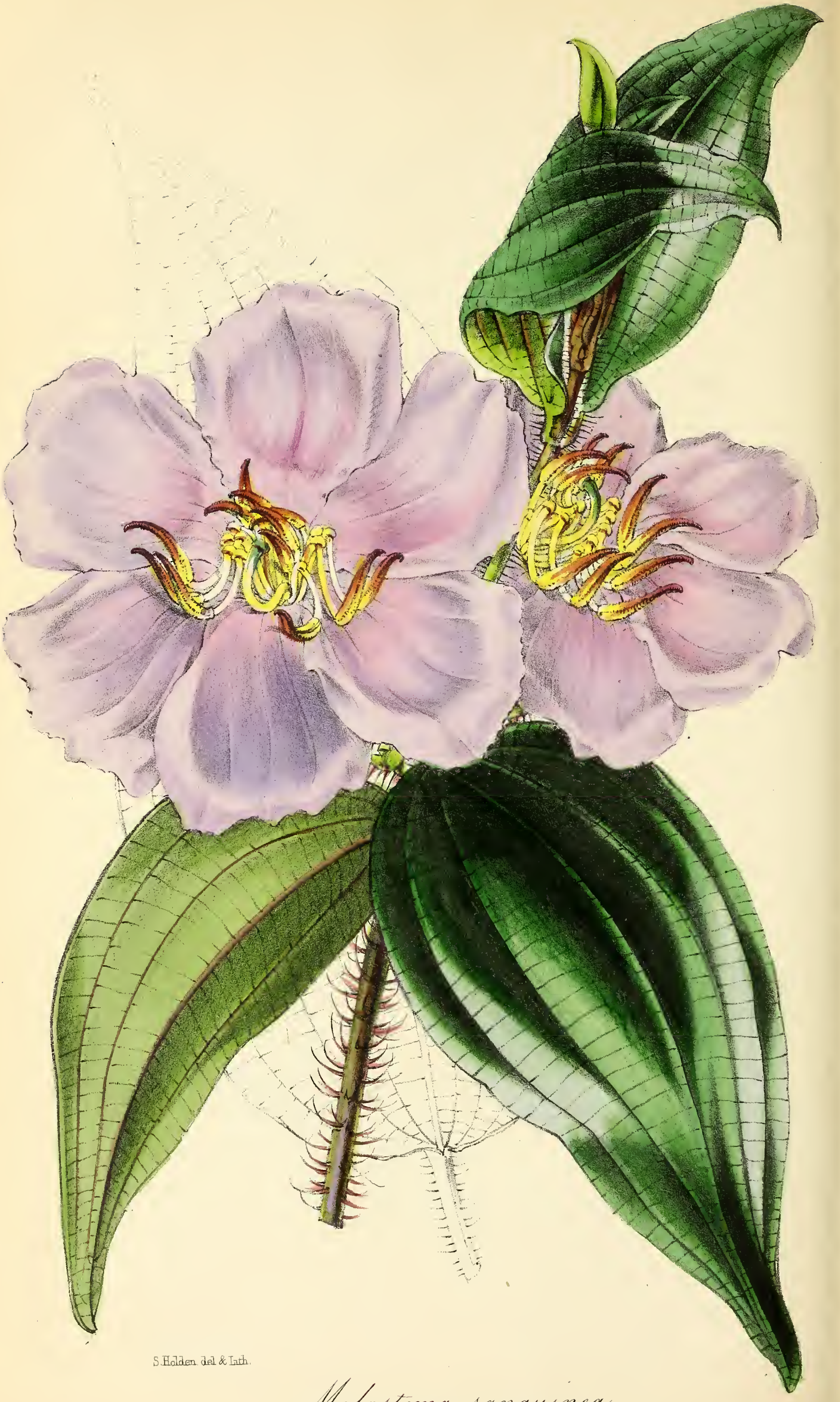
When the whole of the leaves have fallen from the trees, and all the transplanting is done, the leaves can then be raked off the beds, borders, and shrubberies, and these be roughly pointed over, and left to mellow during the winter. Or, the leaves may be left lying on them, and dug in where they have fallen. It would be impolitic to dig over these parts before the last of the leaves have been shed; for, in many places, where this is done too early, the garden has a slovenly appearance all the winter, from the latest leaves lying about along the margins of the borders, and around the stems of the plants.

Just before digging over the borders, &c., all pruning must be attended to, and any manure applied that may be wanted, and everything be properly staked and fastened, and those shrubs layered that require layering. At the same time, herbaceous plants can be divided, layers taken from plants which were put down the previous winter, and every other such matter looked after, as it will not do to have to tread over the ground after it has been dug. Cuttings taken from any particular shrub while pruning, may now also be put in, if the kind is desired to be increased. A place in the kitchen or reserve-garden should always be set apart for this purpose, for it is very useful to be able to get a specimen of any sort when it is wanted. Any evergreens, too, that have become ragged and straggling, can be pruned back at the top, and have their lower branches layered. This is a good way to form bushy, broad, and spreading specimens.

A few bulbs should be put every week into a small hot-bed-frame, or pit, and thus a succession of flowering plants will be kept up for the greenhouse, conservatory, or drawing-room. Let the pots be plunged in old bark, about one or two inches above the rim, and the growth of the bulbs will be commenced in a much more satisfactory manner than if this were neglected.

Heat and dampness are as much the enemies of plants in houses at this season, as frost. And hence, all dry air that can be given will be of the utmost value. Very little watering will of course be needed. Numbers of the hard-wooded greenhouse plants which shed their leaves may be cut down, and put away in the corner of a shed or cellar. They will prove extremely useful in filling up the flower-garden and borders next season. Everything that would occasion dampness, or harbour it should it otherwise abound, must be instantly cleared away, in houses, pits, and frames.

Preparations should constantly be kept ready for sheltering any tender things that may have to remain in the open air. It must be borne in mind, however, that many plants are more injured by protection than by exposure, and it should be the business of the cultivator to ascertain which these are, and act accordingly. Others, again, would not be hurt by frost, but are greatly damaged by winds. For these, a different sort of shelter should be provided, and one that only screens them at the sides, without covering them in at the top. In all instances, the covering ought to be opened as frequently as practicable, for plants are apt to be made too tender, and become blanched, and be otherwise prejudiced, by a too constant or too dense protection.



S. Holden. del & Lith.

Melastoma sanguinea.

MELÁSTOMA SANGUÍNEA.

(Bloody-veined Melastoma.)

Class.
DECANDRIA.

Order.
MONOGYNIA.

Natural Order.
MELASTOMACEÆ.

Generic Character.—*Calyx* with an ovate tube adhering to the *ovarium*, densely covered with scales or bristles; limb five, rarely six-cleft; the segments alternating with the appendages, both deciduous. *Petals* five or six. *Stamens* twice the number of the petals. *Anthers* oblong-linear, a little arched, opening by a pore at the apex, each furnished with a stipe-formed connective, which is in some species elongated, and in others short, but always bi-auriculate or emarginate in front. *Ovarium* free, part conical and bristly. *Style* filiform, somewhat thickened at the apex. *Stigma* a pruinose dot. *Capsule* baccate, five or six-celled, opening irregularly. *Seeds* cochleate.—*Don's Gard. and Botany.*

Specific Character.—*Plant* an evergreen shrub. *Branches* terete, very rough from red bristles. *Leaves* on short petioles, ovate-lanceolate, acuminated, five-nerved, green above and shining, but red at the nerves beneath, and on the petiole. *Pedicels* bi-bracteate. *Flowers* few, large, rose-coloured, terminal. *Calyx* covered with very long incurved bristles. *Petals* six, large. *Fruit* bracteate.

This beautiful shrub, so seldom seen in our stoves, although it has been twenty years in the country, is a native of the Sunda Islands, where it grows to a large bush five or six feet high.

In cultivation it seldom reaches a greater altitude than three feet, unless planted out in a border. The branches are well clothed with leaves, and terminate in a cluster of very large delicately-soft pink or rose-coloured flowers, the ephemeral character and successive expansion of which, however, prevent them from appearing at any one time in excessive quantity; and it is, therefore, rather a plant which presents a moderately attractive aspect for a considerable period, than a gorgeous blaze of beauty lasting only for a few days.

A tendency to grow perfectly upright is commonly displayed not only by this species, but by most of its congeners, and in order to obtain bushy specimens it is consequently necessary to tie down the outmost shoots, and shorten back the inner ones, that laterals may be formed to fill up the middle of the bush. Pruning, indeed, is absolutely necessary, every year, to prevent a loose diffusive growth, and to secure vigour and the free development of blossoms.

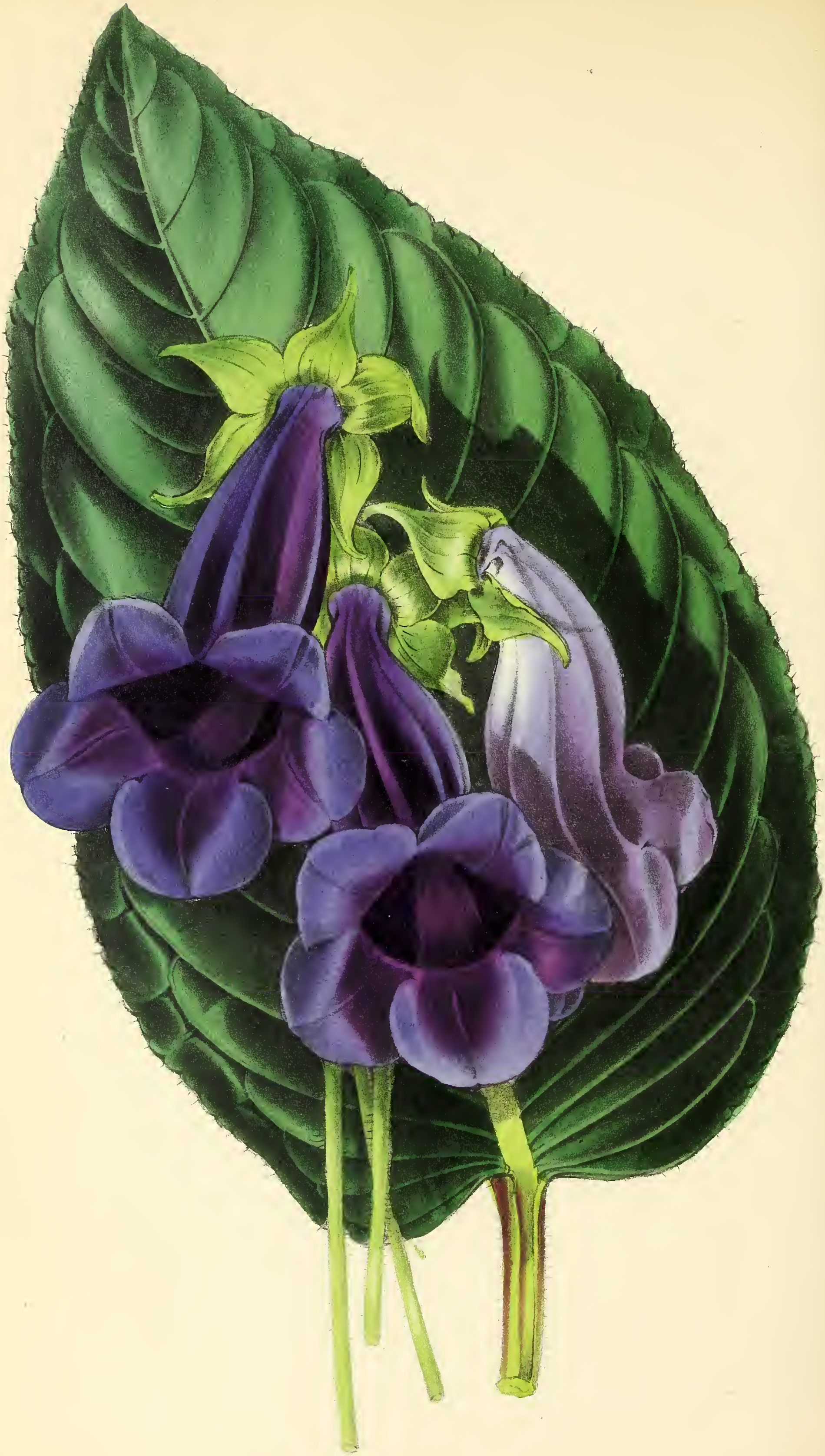
In the general characters of the plant there is a striking affinity with *M. macrocarpum.* It is, however, easily known from that species by the blood-coloured petioles and nerves of the leaf, and the crimson bristles which clothe the stem. These features, whilst they thus serve to distinguish it, and have been selected as the foundation of the specific title, impart an additional interest to its appearance.

The extreme humidity of the atmosphere in those islands which produce it, affords a valuable hint to the culturist in its management. A warm moist air and the same conditions preserved about the roots during the period of growth are amongst the most important particulars in the treatment of the genus. They will thrive in any peaty soil, but are much improved by the addition of a portion of leaf-mould.

Propagation is easily effected by planting cuttings of the young wood in sand mixed with a little finely-sifted peat-soil, assisted by a gentle bottom-heat, and a bell-glass. Young plants a few inches high frequently produce flowers.

Our artist was obligingly permitted to prepare the drawing from which the accompanying plate was executed, from a handsome specimen which flourished last September in the stove of R. G. Loraine, Esq., Wallington Lodge, Carshalton.

The generic appellation, derived from the Greek *melas*, black, and *stoma*, a mouth, originated in the staining properties possessed by the berries of some of the earliest known species, which being frequently eaten by children, dye their mouths black.



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Gloxinia Passinghamii

GLOXÍNIA PASSINGHÀMII.

(Mr. Passingham's Gloxinia.)

Class. DIDYNAMIA. *Order.* ANGIOSPERMIA.

Natural Order. GESNERACEÆ.

Generic Character.—*Calyx* adnate to the ovarium, by the middle; limb five-parted, free. *Corolla* semi-superior, oblique, funnel-shaped, or campanulately subringent, gibbose behind at the base; tube ventricose; limb spreading; upper lip two-lobed, lower one three-lobed. *Stamens* four, didynamous, with the rudiment of a fifth behind. *Glands* five, perigynous. *Capsule* one-celled, two-valved; placentas two, parietal, two-lobed. *Seeds* numerous, oblong.

Specific Character.—*Plant* a tuberous perennial. *Stem* short, and as well as the leaves, petioles, and peduncles, covered with villous hairs. *Leaves* ovate, wrinkled, bluntly and rather closely crenated, somewhat acute, glaucous beneath. *Calyx* spreading. *Flowers* very large, deep rich violet.

Numerous and beautiful as are the many varieties of different species of plants, the production of which we may trace to the practice of hybridising, still there is not that genuine interest attached to their origin which surrounds that of a subject like our present.

In the instance of a novelty procured by means of the practice in question, however much we may esteem it for its individual excellence, our regard for its merits is not unaccompanied by a reflection, that it is in the power of many, by the employment of similar agency to that which has originated the object of our solicitude, to obtain that which may equal, perhaps eclipse, what we would fain consider unsurpassable.

But to revert to the origination of the subject of our present notice as recounted by Mr. Passingham of Trew, in the county of Cornwall, in compliment to whom the plant has received its specific title.

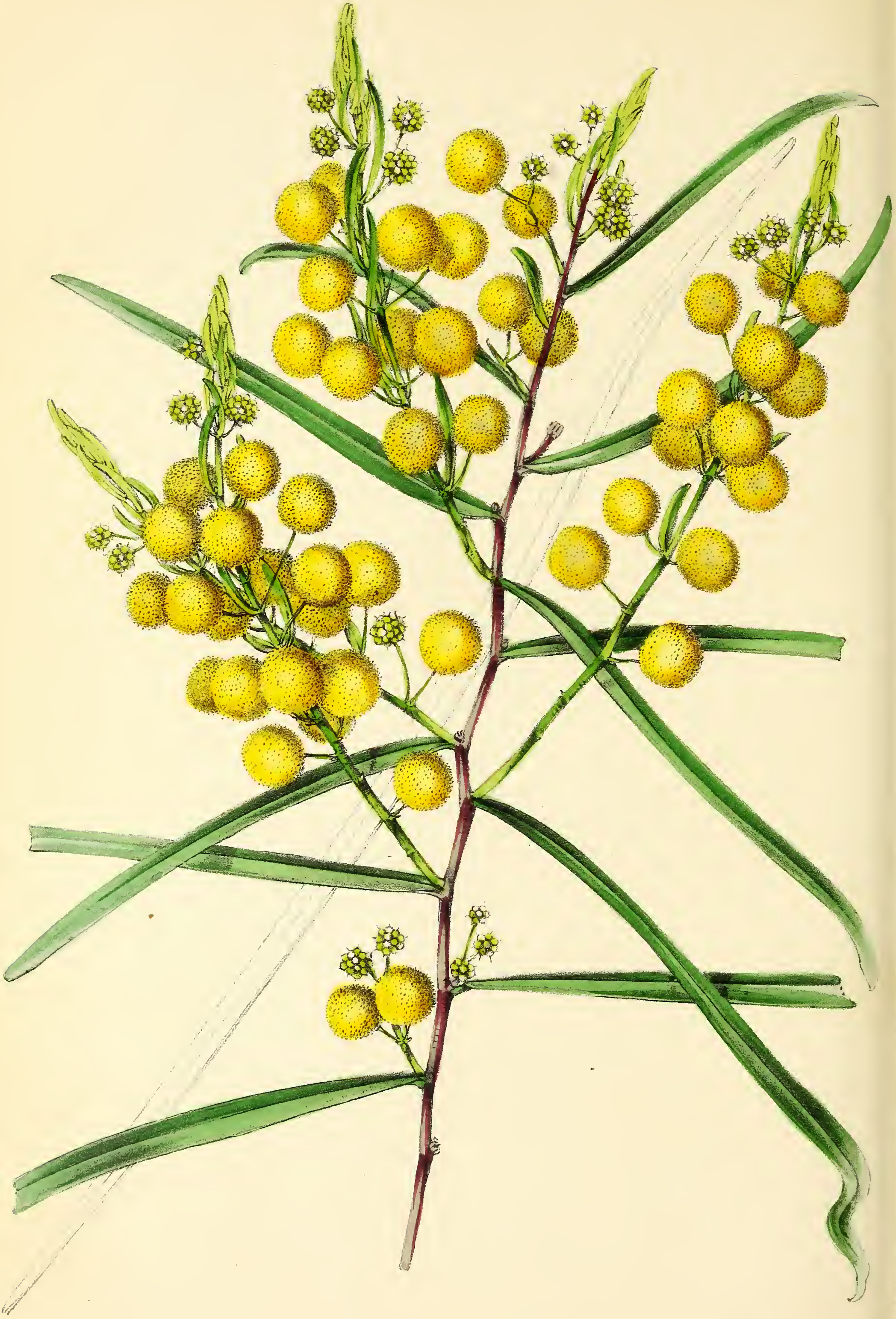
Mr. P. writes:—"The Gloxinia was discovered by a friend who is a great florist as well as botanist, in the province of Rio Janeiro; it was found in a deep ravine, much shaded, and in a very damp situation, high up the Corcovado mountain. It was in a situation very difficult to get at, but its extremely rich purple colour induced the gentleman to procure the root, as the flower was so distinct from any other he had before met with."

In tracing the history, and contemplating the native wilds from whence so engaging an object has been wrested, we find encircling its origin an enduring interest that the appearance of rivals, though possessing superior claims upon our attention, cannot destroy.

Apart, however, from these considerations, *G. Passinghamii* possesses in a vigorous habit, very prolific bloom, and large highly-coloured flowers, all the properties that can render one of its interesting family valuable.

The present genuine importation, kindly sent to us last Autumn by Messrs. Rendle of Plymouth, although differing greatly in its superior appearance, does not appear to be specifically distinct from *G. speciosa;* nevertheless, we give it the name under which it is now passing.

Planted in a rich fresh compost, allowing plenty of pot-room, and placed in brisk bottom-heat, being liberally supplied with water during the period of its growth, and an occasional watering with liquid manure, were the main features in the treatment the original bulb was subjected to before disclosing its superb flowers.



S. Holden del. & Lith.

Acacia longifolia

ACÀCIA LONGIFÒLIA.

(Long-leaved Acacia.)

Class.
POLYGAMIA.

Order.
MONŒCIA.

Natural Order.
LEGUMINOSÆ.

Generic Character.—*Calyx* four or five-toothed. *Petals* four or five, sometimes free and sometimes joined together into a four or five-cleft corolla. *Stamens* variable in number, from 100 to 200 in each flower. *Legume* continuous, dry, two-valved.

Specific Character. — Phyllodia lanceolate, attenuated at both ends, two or three-nerved at the base and quite entire, the rest many-nerved. *Spikes* axillary, twin, on short peduncles. *Calyx* four-cleft.

Synonymes.—*Mimosa longifolia, M. macrostachya, Acacia floribunda.*

It is a fact respecting this wonderfully extensive genus, to which we render an unwilling admission, that the well-known uniformity in the colour of the flowers of its extensive family divests it of a portion of that interest, that the merits of its numerous species as a whole otherwise deserve. But while we are compelled to acknowledge this defect in respect to the inflorescence of the family, we are happily able to point to a feature in its general character that, in a great measure atones for that defect: we allude to the great diversity of forms that characterise the foliage in the different species.

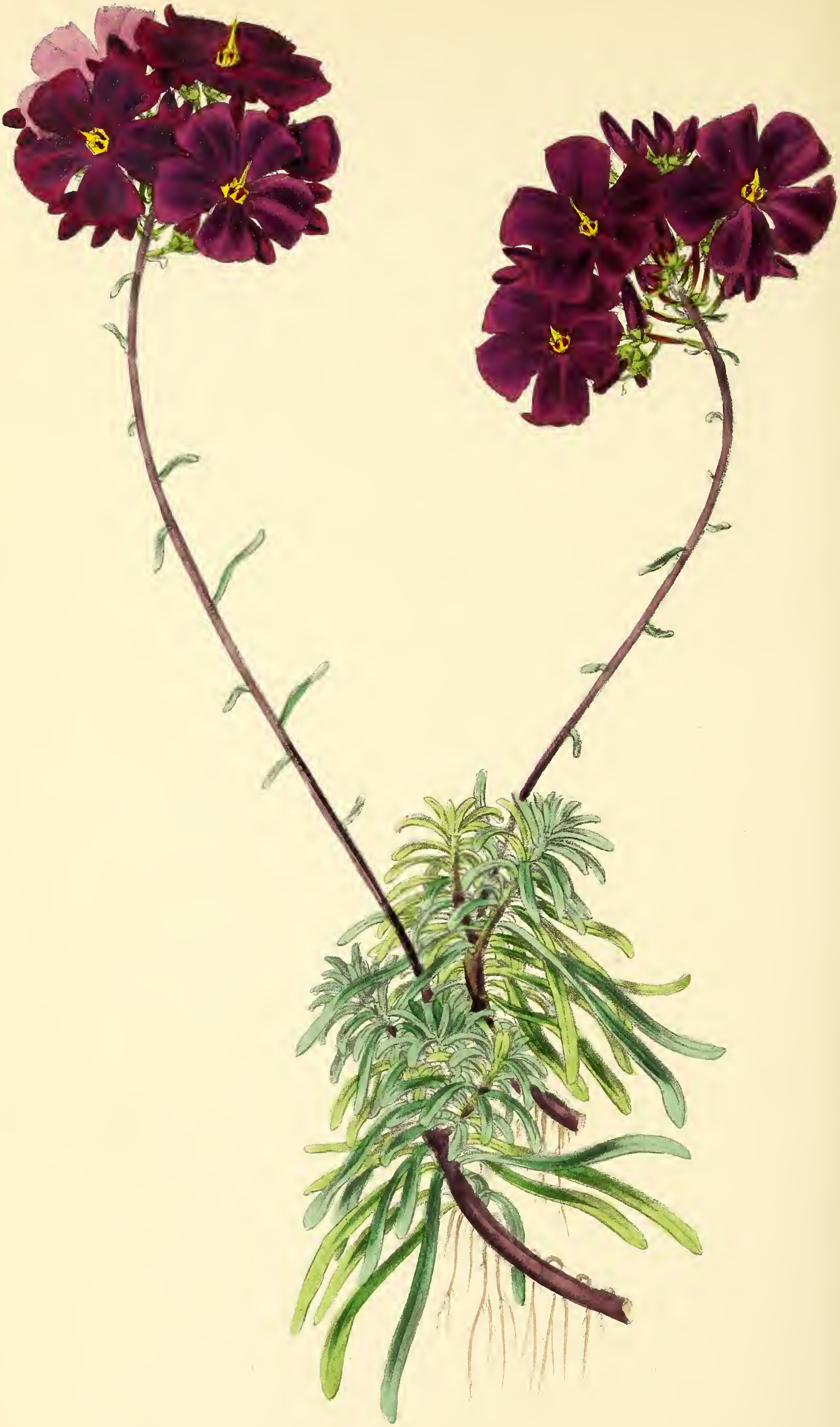
The existence to a certain extent of this variation might also be referred to the manner in which the flowers are produced.

Our present species is a native of New South Wales, but nearly half a century has elapsed since it was introduced to the country: it is one of the stronger-growing kinds, approaching a tree-like dimensions; and under cultivation, perhaps, it would be more in its proper position if planted against a conservative wall, or in the border of the conservatory; undoubtedly in these situations it would be seen to the greatest advantage, but that does not preclude it from being induced to wear an engaging aspect under other circumstances: it rather points it out to the cultivator as an object on which to exercise his skill.

The main point to attend to in its management as a plant cultivated in pots, would be a constant endeavour to obtain age in the plants, at the same time not permitting their growth to extend beyond certain limits. A liberal use of the pruning-knife would be quite requisite in order to further the object just mentioned; and in training, it should be the principal care to maintain a proper proportion in the several parts of the plant, in conjunction with a uniform growth.

Many of the family produce seeds freely, and those who wish to have vigorous plants, should employ seeds to obtain them. But if small flowering specimens are required, cuttings taken from old plants should be chosen ; such would easily be induced to grow, by bestowing upon them the usual attention. The proper soil to ensure a healthy vigorous growth would be a sandy loam, with equal proportions of peat and leaf-mould.

Our drawing was prepared from a specimen in the superb collection of New Holland plants, possessed by the Messrs. Henderson, of Pine Apple-Place.



S Holden del & Lith

Calandrinia umbellatum

CALANDRINIA UMBELLÀTA.

(Umbel-flowering Calandrine.)

Class.
DODECANDRIA.

Order.
MONOGYNIA.

Natural Order.
PORTULACACEÆ.

GENERIC CHARACTER.—*Calyx* permanent, bi-partite; sepals roundish-ovate. *Petals* three to five, hypogynous, or inserted in the bottom of the calyx, distinct or connected together at the very base, equal. *Stamens* four to fifteen, inserted in the torus or base of the petals, distinct, generally alternating with the petals. *Style* one, very short, tri-partite at the apex; lobes collected into a clavately-capitate stigma. *Capsule* oblong-elliptic, one-celled, three-valved, many-seeded. *Seeds* adhering by capillary funicles to the central placenta.

SPECIFIC CHARACTER.—*Plant* suffruticose. *Stems* procumbent, determinate. *Leaves* crowded, linear, acutish, pilose. *Flower-stems* terminal, wiry, tumid at the base, purplish, bearing a few distant small leaves. *Corymb* cymose, terminal, many-flowered. *Bracteas* ciliated. *Sepals* nearly orbicular, permanent. *Stamens* ten to fifteen. *Ovarium* prismatically conical, tapering a long way.

SYNONYMES.—*Portulaca prostrata, Talinum umbellatum.*

THE enterprising zeal in the cause of botany and floriculture displayed by the Messrs. Veitch and Son, of Exeter, has now become pretty generally known, through the numerous magnificent plants which have been introduced to this country by their means, and deserves the thanks of every lover of cultivated flowers. The elegant little plant portrayed in the annexed plate, is another instance of their success; and though by no means likely to acquire the popularity which some of the importations of those gentlemen have attained, it is, nevertheless, one which every one who sees it with its blooms expanded must pronounce beautiful.

It is a small sub-shrub, of a prostrate habit, with little crowded linear leaves. The flower-stems, which are very wiry, spring from the termination of the preceding summer's shoots, and rise about six inches, in their progress forming a bottle-shaped swelling at the foot, from immediately beneath which five or six fresh shoots push, to flower in their turn the succeeding season. Thus the plant goes on extending year by year, still retaining its procumbent habit, and multiplying the number of flowering branches. The flowers are disclosed in clusters at the top of the almost leafless flower-stem, and though they are not so large as those of some of its allies, they ensure esteem for their numbers and rich purple colouring. They are by no means fugacious, but unfortunately, like other Calandrinias, they never expand except whilst the sun shines brightly upon them; the moment its rays are intercepted, the petals fold together again. By what organic contrivance, and for what end these flowers have been endowed with so much sensibility to light, is a subject we may wonder at, but perhaps never penetrate. Whilst, however, we lament the fact as detracting from the value of the plant as an object of beauty, it may be interesting to those who are fond of abstruse inquiry and speculation.

In its wild state it inhabits dry rocky places about Conception, in Chili, where it was first discovered by Ruiz and Pavon, and described in the "*Flora Peruviana*" as *Talinum umbellatum*. The natives call it the *Flor de la Mistela;* and the flowers are employed by the females to paint their faces. The plants sent to Messrs. Veitch's were met with by their collector, Mr. Lobb, in his exploration of that district.

It is expected to prove quite hardy. Till this is better determined, however, it will be the safer plan to preserve it in pots in a frame, or on a dry shelf of the greenhouse, during the winter months. In summer it may be planted on rock-work, amongst a collection of Alpine plants.

It may be multiplied by cuttings; but, as seeds appear to be freely produced, they will probably form the readiest means of acquiring a good stock of plants.

OPERATIONS FOR JANUARY.

So great has been the fall of rain in many parts of the country up to the present period, (the middle of December), and so much has vegetation been kept in a growing or excited state in consequence, that the advice we gave last month relative to preserving plants from injurious dampness, acquires twofold force, and becomes applicable, not merely to greenhouse and half tender kinds, but also to those nearly hardy shrubs and other descriptions of exotics which happen to have a permanent position in the open ground. Although, therefore, protection from frost has scarcely yet been necessary for plants of this class, shelter from excessive wet is quite as indispensable, because it is wetness which chiefly gives to frost its injurious power.

Either by screens of oiled canvass or calico, then, or by garden-mats so placed as to throw off the rain, or by any other almost impervious covering, tender exotics should always be sheltered in extremely rainy autumnal or winter weather, so that the soil about the roots, and consequently the entire specimen does not get saturated with moisture. This is particularly needful in the case of borders containing exotic bulbs or other tender herbaceous plants, and likewise on borders which are filled with the roots of delicate climbers trained to an adjoining wall or trellis. If a covering of some description is hung in autumn, and kept during winter from the top of the wall, so as to shelter the whole border without materially shading the plants or depriving them of air, they will require scarcely any protection from frost.

But there is another thing in addition to both wet and frost, which hurts many plants greatly, especially in particular localities, and which affects species that are generally undamaged by frost. This is a cold or violent gale of wind. Many places throughout the kingdom are peculiarly liable to strong gales of wind from some one or more quarters; and these gales destroy the tissue of evergreens in winter to a most lamentable degree. There is therefore a species of protection demanded in such positions for the specific purpose of guarding against winds; and the best kind of thing for this object is open wooden hurdles, which can be moved round to any side of the plant from which the wind happens to be blowing, and which should have branches of any common fir, pine, or furze, drawn through them, so as to form an efficient screen. These branches ought not, however, to be placed too closely together; for it is a principle which should always be observed in carrying out any plan that has shelter from wind for its object, that an open, meshy screen, provided it be not too open, is more effective than a close and solid one, since the wind is broken by the former, while it is merely diverted and comes over the screen with accelerated power by the latter.

In endeavouring to prevent plants in houses or frames from deriving harm through the wetness of the season, the precautions we have before suggested should be continued with increasing vigilance. In this department, the culturist has the state of the atmosphere and the fluid supplies of the plant almost wholly under his control; so that he may at any time alter the one by attention to the other. A stinted supply of water will do much towards maintaining a comparatively dry atmosphere; and a little fire heat now and then, when this remedy fails, will render the plants perfectly safe. Only, where fires are necessarily employed, there should be the utmost rigour in regard to not using or increasing them heedlessly; for they will do the greatest harm when put on to any excess, and can, indeed, be admitted at all, merely to expel a worse evil.

All those plants which have been taken up from the flower-beds because not quite hardy, and stored away in cellars or sheds, should be examined occasionally, to see that they are not getting mildewed, or too damp, or are beginning to grow. Mildew may be easily rubbed off, or the parts affected may be cut away; while the cure for dampness is exposure to the air if it be mild enough, or being put in a dry room, where there is a fire, for a short time. Any growing parts, too, can be carefully cut off, near the base.

In the forcing house, pit, or frame, the principal thing is to preserve a comfortable degree of atmospheric moisture; which can be done either by steam, by troughs of hot water, or by using moist materials for bottom-heat. The last is, perhaps, the best plan; moist fermenting manure, or bark, or leaves, being very congenial to the growth of plants.

The out-door routine in the pleasure-grounds this month will be almost confined to the work of pruning, digging the borders, &c. But it will not be proper to neglect sweeping the lawns, walks, and so forth ; for if leaves or rubbish are allowed to accumulate or lie on grass, they cause it to decay, or to become patchy and imperfect ; while the existence of worm-casts or any kind of dirt on walks not only injures their appearance but spoils the gravel. Besides, as the walks are scarcely ever dry and comfortable to walk upon in winter, they should be kept as clean as possible, so that the evil may be mitigated rather than increased.

Operations which involve much carting or wheeling are generally prosecuted vigorously this month during frosts. Ground-work, too, where there is any bulk of earth to remove, is one of the few things which can be best carried on in frosty weather. By undermining the earth to be taken away, and getting into the unfrozen part, the whole can easily be shifted.

Any mild intervals between this time and the beginning of March should be seized for putting in all deciduous shrubs or trees which may not have been planted earlier, in cases where planting is desired. It is highly injudicious to defer this kind of work too late, as the plants are thrown back nearly a year in consequence, and often lose some of their principal branches, or die altogether.

In the case of any fine evergreens, which may have been transplanted in the autumn, the heavy rains will render them peculiarly likely to be injured by frost ; and it will therefore be advisable to have the soil about their roots mulched thickly with leaves or any kind of loose litter. This will act as a protection to them, and prevent them from being so vitally damaged. It will be much better than any covering that might be put round the branches.

Tulips in beds are sometimes apt to have their leaves cut by severe frost, and oftener so by cold winds. A covering of canvass in wet weather, to keep them from getting too moist, will generally guard them sufficiently in the former instance ; but they should be sheltered on the windy side with those movable hurdles, having pine-branches drawn through them, which we have already recommended for tender shrubs, when injurious winds occur. The same sort of protection will also be useful for Japan Lilies, or other tender bulbs.

Advantage should be taken of wet or frosty weather to examine all kinds of implements, and see that they are in proper order, getting them prepared when requisite, and arranging them in suitable places. All sorts of seeds should likewise now be looked to, and cleaned, or otherwise regulated. They must be properly dried before a slow fire if found to be in the slightest degree damp.

Compost and manure heaps should be well turned over this month, after the first frosts, that they may have the full benefit of the weather in mellowing and pulverising them. Any species of soil that may have been much used, and of which there is but a small stock, should now be replenished. Where loam, or other soil obtainable from a meadow or pasture is to be collected, the turf should never be cut away from it ; as it is the fibre from the decaying or decayed vegetable matter in this which is so excellent a mechanical agent in draining soils used for potting.

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